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THE HARVEST-BUG (*LEPTUS AUTUMNALIS*), AS A CANINE PARASITE.

BY GEORGE FLEMING, F.R.C.V.S., 2ND LIFE GUARDS.

THE Harvest-bug, or Grass-tick, though well known as a human parasite in many parts of the country, and at a certain period of the year, has never, to my knowledge, been mentioned in English veterinary literature as attacking any of the domestic animals. In the *Veterinary Journal* for June, 1876 (p. 429), there appeared the translation of a case reported by Professor Friedberger, of the Munich Veterinary School (*Archiv für Wissenschaftliche und Practische Thierheilkunde*), in which the Tick had been discovered by him on the nose of a Newfoundland dog, which, it was surmised, may have received the parasite through being located in a park where vegetation—such as dry grass (the month was August) and gooseberry bushes—was abundant. Friedberger, who gives a good description of the epizoön obtained from the dog, thought this a unique case in veterinary literature. But the editor of the *Veterinary Journal* pointed out that, in France, MM. Mégnin and Mathieu, of Sèvres, had seen a dog on which the Harvest-bug had located itself; and Mégnin conjectured that the disease of sheep known in that country as *Noir-museau* ("Black-muzzle"), may be due to its attacks.

However this may be, I cannot find that any authority has

observed it upon the dog or other animal in this land, and I therefore think that allusion to an instance which came under my own personal observation may not be without some interest and value—if only to prove the fact that the insect may become a troublesome canine parasite in England.

Early in the month of August last, I was staying with a friend near Sittingbourne, Kent, and had with me a very small, fine-skinned, black-and-tan toy terrier. In my rambles through the fields, among bushes, grass and stubble, I received much attention and was subject to great annoyance from the minute and all but invisible pest, which appeared—so far as the surface of one's body is concerned—to be ubiquitous. In these rambles the little dog accompanied me; and in the course of a few days I remarked that it was not so lively as usual, that its coat, particularly on the top of the head, upper part of the neck, and along the back, was harsh-looking and erect, and that the creature often rolled on the ground, rubbed itself against the legs of chairs and other objects, scratched itself, and evinced a desire to be stroked. On passing the hand over the skin, in order to gratify the dog, the integument was found to be rough and nodulated, as if covered by a papular eruption, and in places it was moist and corrugated. A close examination led to the recognition of a number of small vesicles here and there, little hard nodular swellings like pimples, and a few minute raw spots. I did not for a moment suspect the presence of the Harvest-bug, and thought the dog was suffering from a kind of Eczema—though the localisation of the supposed eruption on the thickest part of the skin rather excited my surprise. A more attentive scrutiny, however, enabled me to discover clusters of tiny atoms—very much less than the head of the very smallest pin, of a brick-red or Cayenne pepper tint. Recourse to a pocket lens left no doubt whatever that swarms of Harvest-bugs had fixed themselves on those regions of the poor little dog's body least accessible to its paws or teeth. They clustered on each little elevation of the skin or papule just like a swarm of bees; and after a time, when the eye became accustomed to look for them, sundry individuals could be seen moving about on the skin among the hairs—their bright colour contrasting markedly with the black derm of the

dog. The amount of irritation they caused was evidently great, and the skin—though much itching was present—was sore on manipulation. To judge from the number of papules, vesicular elevations, and ridges on which the ticks lay in clusters, there must have been many hundreds present on the comparatively small surface occupied by them. It was astonishing how tenaciously they clung to the skin, and it required pretty firm scraping with the blade of a pocket-knife, before a number could be removed for examination and preservation. On a sheet of white or very dark paper, the scarlet bugs could be seen moving about very actively—indeed, wonderfully so, when we considered their extremely minute size.

The tenacity with which they adhered to the skin was evidenced by the presence of a shred of epidermis on the proboscis of several of the parasites which had been forcibly removed.

The little dog, being much distressed by the bug, was dressed with the remedy most convenient at the moment—paraffin, which appeared to free it from its tormentors, though not until some days had elapsed. The itching in the nodules did not subside, however, for a longer period, and the skin looked unhealthy for some weeks.

Recourse to treatment, from humane motives, of course prevented my ascertaining how long the parasite is capable of domiciling itself on the dog,—but I think the case was sufficient to prove that with high-bred, fine-skinned, almost hairless animals, the Harvest-bug might prove a real torment and cause of disease, for some time at least.

From my own painful experience of the insect, I am inclined to believe that it is sarcoptic in its habits—*i.e.*, it burrows beneath the epidermis; for I have frequently observed it under the epidermis—particularly on the arm, where the skin is thin and white—at a little distance from the point where it had penetrated, and where the irritation and swelling were most intense. I have also produced great irritation, and the consequent tumefaction, by rubbing the skin where the bug had lodged itself—the rubbing having excited it to throw out the acrid fluid which produces so much itching and local inflammation.

The Harvest-bug is well known in Kent, and especially to the hop-pickers and farm labourers during the harvest months; and, like many other insects of this description, it does not infest every person exposed to its attacks—some people enjoying a most enviable immunity. I am informed that it chiefly, if not altogether, haunts chalky soils; there being some contiguous localities where the soil is gravel, and the creature is unknown.

Küchenmeister (*Die in und an dem Körper des lebenden Menschen vorkommendem Parasiten*, p. 428), very fairly describes the *Leptus autumnalis*, and notices that during the harvest-time in dry grass, newly-cut grain crops, among ripe gooseberry bushes, and such-like vegetation, this mite abounds; from these, it gets on the human skin, where it behaves like an *Ixode*, except that it bores into the integument with its head, and gives rise to little boils, papules, impetigo-like pustules, or shallow but not unhealthy ulcers. In these burrows, according to this authority, the yellowish-red parasites—each no larger than the point of a needle—appear in a series like a string of pearls, or are congregated in clusters, as on the little dog just mentioned.

The life of the parasite, Küchenmeister states, is very brief. It is most frequent in its attacks early in July and the beginning of August; after this period it probably retires into mossy places, and undergoes its further development or evolution. During the harvest-time, it is often so violent in its attacks on man as to give rise to annoying itching, inflammation, swelling, and even fever; often they are in such crowds on the skin of the reaper, and particularly towards the hair-roots, that the red colour of the insect gives rise to a peculiar appearance known as "rouget." It is also asserted that the creature seldom lives long as a parasite on the human skin—rarely tarrying more than a few days. In unfavourable external circumstances, however, and when the annoyance persists in a certain locality where the mites are very numerous—as in a gooseberry garden—then the disease they produce will recur repeatedly for weeks and months, until the end of harvest.

I have not yet had leisure to examine the specimens procured from my dog. Friedberger's specimens did not vary much

in size, and their average measurement gave the following result:—

Length . . . 0·43 millimetre.
Breadth . . 0·26 „

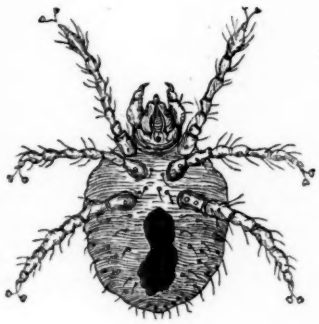

FIG. 2.
Harvest-bug : under surface.

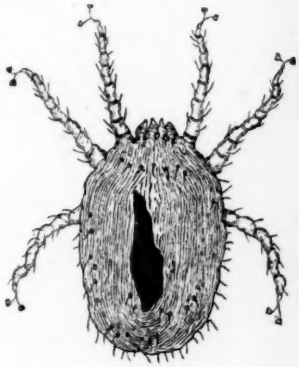

FIG. 3.
Harvest-bug : upper surface.

The head was very short and wide, and furnished with particularly strongly developed antennæ, the terminal extremity of these having a hook or claw in the middle of a feathery-looking apophysis. There were three pairs of limbs, all of which were about the same in length and proportions; they were divided into five or six segments, and were studded with bristling hairs. All the legs had two lyre-shaped hooks attached to their distal extremity, but no sucker disc. Instead of the latter, each foot was bulbous and knotty, and had a flattened hook-like termination, provided with a close-set and fine, but hard third hook, which might have been mistaken for the end of a bristle. The oval body was distinctly fluted or ridged—the under side transversely, the upper surface longitudinally. The abdomen appeared to be pretty closely studded with bristles. The red-coloured matter (shown in the woodcuts as dark masses in the abdomen), and to which the parasite owes its tint, was distributed throughout the body in large and small vesicles. Neither the circulatory nor generative apparatus were observed.

Gudden, of Zurich (Virchow's *Archiv*, 1871, p. 255), gives a similar description to that of Friedberger, though he figures a suction proboscis. Küchenmeister and Von Siebold give the parasite eight legs during its juvenile condition.

The Harvest-bug belongs to the *Acaridæ*—a division of the tracheary *Arachnida*, and in which the true ticks, or *Ixodidæ*, are classed. The latter are found in thick woods, attached to low plants, and readily fasten themselves upon dogs, cows, horses, and other quadrupeds which approach them. They bury their suckers so deep in the skin of these animals, that it is impossible to detach them without tearing away the integument on which they have fixed themselves. The *Ixodidæ* are comparatively large insects; and the *Ixodes ricinus* (or "dog tick"), and the *Ixodes reticulatus* (or "ox tick"), are the most familiar. Some of the members of this class are extremely troublesome, even destructive, to animals. Anderssen (*Lake Ngami*, p. 21), referring to one found in South Africa, writes: "The bush-tick does not confine its attacks to men only, for it attaches itself with even greater pertinacity to the inferior animals. Many a poor dog have I seen killed by its relentless persecutions; and even the sturdy ox has been known to succumb under the poisonous influence of these insects."

The *Ixodes Americanus* (Pohl), of Brazil, is very numerous, and Burton says that horses and cattle suffer greatly from it and even die of exhaustion.

The Harvest-bug, exceedingly minute though it be, has all the offensive qualities of the *Ixodidæ*, and can prove both troublesome and hurtful, as the foregoing case amply proves.

Whether it attacks other animals than fine-skinned dogs, has yet to be ascertained. Probably members of the profession practising in Kent or in other districts in which this insect exists may be able to afford information on this point.

AZOTURIA.

BY T. HOPKIN, F.R.C.V.S., MANCHESTER.

THE report of the Montreal Association in the *Veterinary Journal* for January states that an interesting discussion on what they term "Hæmoglobinurea" was adjourned, there being some difference of opinion as to the pathology of this disease.

There is no doubt that our Azoturia and their Hæmoglobinurea* are one and the same malady.

To any one who is not conversant with the history, pathology, and treatment of this disease, I would recommend the article on it in Williams' "Principles and Practice of Veterinary Medicine."

There is good reason for concluding that some of the profession at home are not particularly familiar with it—perhaps owing to its only having been recently recognised. Any cases occurring formerly would, no doubt, be put down to some bowel affection. During my early pupilage, I remember that in a case of supposed inflammation of the bowels, a *post-mortem* examination did not reveal any trace of inflammatory action. At the present time we have a gelding that has repeatedly suffered from Azoturia, and a few practical details in connection with this case may perhaps be deemed sufficiently interesting for insertion in the *Veterinary Journal.*

A black cob gelding, fifteen hands one inch high, bought about three years ago at Tattersall's as one of a pair, was sold soon afterwards on account of his temper in harness—plunging, and only starting at his own pleasure. After I had him a short time, with plenty of work, and care in handling, he improved considerably in this respect, and is now an exceptionally good horse. I have given these details to show the highly nervous temperament of the animal.

On Monday, the 20th of November, 1877, after resting from Saturday, the 18th, he was brought out in the morning for a distance of about three miles to meet me. The groom complained of his pulling, saying he was afraid he would have bolted with him coming up, and he had got over the distance in a little over ten minutes.

* Hæmoglobinurea is the German designation for the malady in question.—ED. *V. J.*

After sitting behind him for a short time, he ceased pulling, and began to go a little lame on the near hind-leg; this lameness was succeeded by tremours and profuse perspiration. Suspecting what was the matter, I ordered the groom to lead the horse home, and directly on his arrival I passed the catheter. The urine at first had not the usual characteristics of Azoturia—being of the colour of muddy beer; but after a moment's pause in the flow, there came about ℥viii of the real Azoturia urine.

This, I think, shows that the exciting cause is the exercise. The urine first drawn was what had been secreted before he was brought out; the second flow must have come from the ureters and kidneys, as it would have mixed with the lighter coloured urine if it had been in the bladder at the same time.

Experimenting with him on several occasions, after the Sunday's rest, I find the more severe the exercise the worse the attack is, and that the slighter symptoms only manifest themselves if he is put in a box and nothing but cold bran mash given to him. He can then on the Tuesday be put to work without an attack.

In some correspondence with Professor Williams on the subject, he says that change in the urine in Azoturia does not take place in the kidney, but is due to the excretion of superabundant albuminoid materials from the blood—not albumen, but its degraded products. When an animal has had rest and a liberal diet of peas, beans, or any food of a similar nature, the system is overcharged with certain products which, when not excreted rapidly enough, cause this peculiar kind of blood-poisoning; and the more highly developed the nervous temperament is, the more predisposed is the horse to the action of this poison.

If the excretory organs are relieved of their paralysis and congestion, the patient recovers, because they speedily throw off the deleterious matter.

There is no difficulty in treating this malady if seen in time. Draw off the urine with the catheter, give both diet and medicine to cause free action of the bowels, and—as recommended and suggested by Mr. C. Elam of Liverpool—apply a large hot bran poultice to the loins. The relief afforded by the latter is wonder-

ful—horses manifesting the greatest agony being relieved almost immediately after its application and the emptying of the bladder. Another matter in connexion with this horse is noteworthy. Judging from his outline and muscular development, one would say that he was a hunter; but whenever I have jumped him (having an idea at first that he would occasionally carry me a day to hounds), he always managed to blunder with his hind-legs; though he always went with his nose well at his fences, yet he could not get these limbs under him, and generally contrived to drop them either into, or on the wrong side of, the fence.

Occasionally, when riding him after a day's rest, when he was tired, I have detected a weakness or falling gait behind, just for a step or two; this has been much more marked after an attack of Azoturia. Is this the condition horse-copers and similar people call "kidney-dropping"?

When feeding him on white peas, this horse had an attack almost weekly; since discontinuing their use, he has been exempt from the disease.

EPISTAXIS.

BY THE SAME.

A BROWN cart-horse commenced bleeding from the right or off nostril whilst at work during a very hot day in July.

Treatment.—Cold water injected up the nostril, and ice to temples. Sesquichloride of iron was given internally; dilute sulphuric acid was also administered by the nostril, which was plugged for hours by means of a muzzle and cotton wool and flour, until at last the horse became so violent that we were obliged to remove these.

The last medical remedy tried was acetate of lead, ʒss. in acid solution. Whether this was beneficial, or a change of weather which occurred, I cannot say; but I had him standing out in a thunder-shower, and the hæmorrhage gradually ceased during the night. From first to last the bleeding continued for a week; the blood sometimes only dropping, at other times flowing in a stream.

Should another case of this kind present itself, I will try tincture of ergot.

ENTERICA: TYPHOID OR ENTERIC FEVER IN THE HORSE.

BY JAS. WEBB, M.R.C.V.S., BISHOP'S STORTFORD

(Late V.S. in the Royal Horse Artillery).

As a doubt seems to prevail amongst veterinary surgeons as to whether the above disease exists in the equine species in this country, I thought the following remarks would suffice to convince them that it is occasionally met with.

During my service in Her Majesty's army, I had the opportunity of witnessing two well-marked *post-mortem* examinations of horses which died of this disease at the Royal Horse Infirmary, Woolwich; but as the cases belonged to two of my brother veterinary officers, I regret to say that I only cursorily noticed the symptoms during life. I recollect that, in one case, the veterinary surgeons who saw the horse during life could not agree as to whether he was suffering from a thoracic or abdominal affection, the symptoms being so uncommon. However, upon making a *post-mortem* examination, all the viscera appeared healthy, until at last the intestines were laid open for their whole length and rinsed with water, when it was plainly visible what was the matter:—there were a number of yellow-looking ulcers of various sizes, some as large as a shilling-piece. In the other case, the animal died in a very debilitated condition, and the same kind of ulcers were seen on the tongue, in the fauces, and in the stomach and intestines; but they were better developed than in the preceding case, as some were even as large as a florin, and nearly penetrating the walls of the latter viscera. The position of many of these ulcers might be known by a congested patch on the external surface of the intestines.

Another horse was diagnosed as suffering from the same malady; and the veterinary surgeon being called to perform duties away from the garrison, I was directed to take medical charge of the horses to which this case belonged. The treatment I adopted was as follows: The patient being already in a well-ventilated loose-box, I requested that he should be frequently coaxed with small quantities of scalded oats, carrots, bran,

hay tea, a few blades of grass, freshly drawn cold water, etc. I prescribed also—

℞ Acid Nitro-hydrochlor. Dil. . . . ℥ij.
Cinchon. Flav. Cort. Pulv. . . . ℥ss.
Pot. Chlor. . . . . ℥ss.
Cerevis ad . . . . . Oj. (*Misce*),

to be given thrice daily, and the patient to be sponged, or lightly wisped over with weak vinegar and water twice a day. In a few days an amelioration of the symptoms occurred, and under this treatment the horse recovered.

LEUCORRHŒA IN A MARE.

BY THE SAME.

A FEW months ago, while attending a horse suffering from "stoppage in the bowels," the owner wished me to look at an aged black cart-mare, which had been suffering from a yellow-looking discharge from her vagina for upwards of two years, and this continued to become worse, notwithstanding he had put her to the stallion both years, and without her having a foal or lessening the discharge. The horsekeeper told me that sometimes upwards of half a pailful of this "matter" escaped from her in one day, and she was "losing flesh fast." Having previously treated milder cases of this disease, I readily undertook the treatment of this case. I requested that the mare should be well nourished, and that she might do light work. I prescribed—

℞ Acid. Arsenios. Pulv.
Cantharid. . . . . *ā, ā*, grs. v.
Nuc. Vomic. . . . . ℥i.
Cupri Sulph. . . . . ℥ij.
Pro j pulv. Mitte. xij. (*Misce.*)

One to be mixed in a bran mash every day, and given to the mare. The mash was always eaten. Topically: Zinc. Sulph. ℥ij dissolved in Aq. Tep. Oj., to be injected into the vagina every afternoon by means of a small enema funnel. After a few days the discharge began to decrease, and within a month the mare was quite cured, and is now in ordinary farm working condition.

THE "LOODIANA DISEASE," OR "MALIGNANT FEVER" OF INDIA.

BY GRIFFITH EVANS, M.D., M.R.C.V.S., ROYAL ARTILLERY, SEALKOTE, PUNJĀB.

SINCE I arrived in India for the first time, in December last, I have had two cases of the disease known as the "Loodiana," or "Malignant Fever," among the horses of the Royal Horse Artillery; and by the kindness of Veterinary Surgeon Walker, I have had an opportunity of seeing something of two cases that occurred among the horses of the 9th Lancers, stationed here. These are not many cases, but I have found in them much that throws new light upon the nature of the disease; and though it is but the dawn, I think I should not delay making it known to the profession, that others may see in what direction we must pursue our investigations, and that the day of revealing this mystery may be hastened.

I will describe the cases in the order in which they came before me.

CASE I.

No. 83, grey gelding, country bred, aged ten years, belonging to H.C. Battery, R.H.A.

January 12th, 1878.—This horse was reported off his feed at noon stables.

At 12.30 I found him looking very dull; conjunctivæ injected, more especially the near eye; mouth hot and dry; pulse 72, and weak; respirations normal. Sent him to the infirmary box for observation.

3 p.m.—Dung soft, with strings of membranous mucus; pulse 76; respirations 12, and regular; temperature of rectum $105\frac{4}{5}^{\circ}$. Examined the blood by the microscope: found a large proportion of granules, and the red discs either did not adhere to each other, or when they did they soon lost their individual outlines, and apparently dissolving into each other, formed an undefined jelly-like mass. Many of the free discs had a crenate form, but I have seen as large a proportion in healthy animals. I discovered no bacteria. From the high temperature, I had no doubt it

was a case of the so-called "Malignant Fever," and the horse was picketed away from other animals.

I had never seen a case of this disease before, but from reading accounts of it, I was led to think it to be the same as Anthrax. Nor do I know anything of Anthrax, except what I have read. I therefore took great interest in this case, and I mention this to show the attitude of my mind towards it, in looking for the symptoms recorded by authors as characteristic of Anthrax.

I knew of no medicine that might be given with any confidence for good in this disease, and I thought the best plan was to study it uncomplicated. Active agents affect both the pulse and the temperature, and with medicine we cannot tell what the natural course of the disease is. I therefore determined to give no medicine, but to watch the progress of the case closely. The patient had, unfortunately, to be picketed in about the most unhealthy place near here, for want of a better, regarding the safety of other horses, presuming the disease to be communicable. It is a low, damp ground, covered with a thick fog at night. He was well clothed, had straw to lie on, and had as much cold water to drink as he would take; but no food was to be offered until the fever subsided. I have often seen patients urged to "take nourishment" in high fever, but I think it tends to do more harm than good.

5 p.m.—Extremities getting cool.

6 p.m.—Pulse 78; temperature of rectum $107\frac{2}{5}°$.

9.30 p.m.—Pulse 88, weaker; temperature of rectum 107°; the extremities are all cold.

13th, 9 a.m.—Pulse 96, and so weak and compressible that it is difficult to count the beats; respirations 16; temperature of rectum $106\frac{4}{5}°$; fæces soft, and covered with membranous mucus; extremities cold.

Noon.—Blood examined again, with $\frac{1}{5}$th and $\frac{1}{12}$th objectives. There are fewer granules than yesterday, and a larger number of white corpuscles, but not more of the latter than I have seen in health; the red discs have the same tendency to congeal, or else to remain isolated; none form *rouleaux*; none of them have the characteristic bi-concave form of health; they are more or less irregular, colloid masses; I found none of a crenate form

to-day; the granular character of the white corpuscles was not so well marked as in health; temperature of rectum 107⅗°; respirations 22; pulse cannot be counted at the jaw; heart's beats 88, and intermittent; there was not that marked contrast between the pulse at the jaw and at the heart which authors mention as characteristic of Anthrax; extremities warm on the sunny side, cool on the other.

3.30 p.m.—Pulse 84, distinct at the jaw; temperature of rectum 105⅖°; respirations 22; the upper part of the throat has commenced to swell, and there is a slight discharge of mucus from the nose; extremities all warm. Examined the blood, and found a wonderful increase in the number of the white corpuscles since noon,—more of them in the field of the microscope than I could count; they were in groups; red discs as before. It is very remarkable that it is more difficult to obtain a drop of blood each time I try. I have to make the incisions of the skin larger and deeper each time; the last time I had to cut quite through the skin, and then blood came very slowly,—it simply oozed out, and very soon dried up,—not a drop flowed beyond the lips of the wound, except what I got on the slide, and that only by everting the lip and pressing the glass on it, though the wound was half an inch long, and through the skin from end to end. It may console the antivivisectionists to know that the patient did not show the slightest sign of feeling the lancet.

5.30 p.m.—Temperature 105⅘°; pulse 82, less distinct at the jaw; respirations 32; swelling of the throat increasing, and becoming more tender to the touch; he drank about one bucketful of water during the day; the syce (groom) says he passed no urine during the day, but I am told the evidence is not reliable; extremities temperate.

9.30 p.m.—Temperature of rectum 104°; pulse 82 at the heart, not distinct at the jaw. I did not find in this case the "metallic tinkling" mentioned by authors as characteristic of Anthrax. Respirations very irregular: at one time they are 30 or 32, and in ten minutes they may be down to 25. The swelling at the throat continues to increase; a little before 6 p.m. he passed fæces of a healthy character, and also about a quart of urine soon after—"very high-coloured and oily-looking."

January 14th, 9 a.m.—The swelling of the throat has increased so much that the artery cannot be felt at the jaw, and it extends the whole way down the neck. Pulse at the heart 60; the sounds less distinct than last night: I suspect hydrothorax. Respirations 14, and more regular and laboured than last night. There is a rusty discharge from the nose; extremities cold; temperature of rectum 103⅘°. Drank a bucketful of cold water during the night.

1 p.m.—Temperature of rectum 103⅘°. Pulse at the heart 62; respirations 28, and laboured; the swelling of the throat increasing.

3 p.m.—Has just laid down, and made an effort to turn on his back; temperature of rectum 104⅘°.

5.30 p.m.—Temperature 104⅗°; pulse 68 at the heart; respirations 22 to 25, and irregular, with increased difficulty at the larynx. I don't think tracheotomy would have any other effect than perhaps prolonging a life of suffering a little. The animal is becoming restless,—shifting his position often, and occasionally lying down.

8.25 p.m.—Died. Half an hour after death I found the temperature of the rectum to be 104⅗°: exactly what it was 3 hours and 5½ hours before death, *and* 4·5° *higher than it was* 7½ *hours and* 11½ *hours before death.* I thought that was very remarkable, for authors state that one of the characteristic symptoms of Anthrax is the high temperature in the early stage of the disease, which falls even below the normal standard when the case is going to terminate fatally. I then began to doubt whether this disease is Anthrax. Other duties prevented me from waiting to find when the body would begin to cool. All the limbs were stiff with *rigor mortis* twenty minutes after death.

January 15th.—The Principal Veterinary Surgeon in India arrived at the station yesterday, on his tour of inspection; and I was exceedingly glad to have his presence at the *post-mortem* examination, especially as this was the first case I had seen of the disease.

Autopsy, 12½ *hours after death.* The thermometer, after remaining in the rectum ten minutes, stood at 95°—just as it

was when inserted. Abdomen very slightly tympanitic; body well nourished; effusion in all the serous cavities; all the serous membranes more or less yellow, and stained red in patches; ecchymosed spots remarkably distinct in the left heart and great arteries; mucous membrane of the small intestines highly congested; spleen and liver congested; the yellow "jelly-like" effusion so often described in this disease along the whole course of the trachea—increasing upwards. I examined this with the microscope, and found it to be simply the connective tissue distended with clear serum, in which were a great number of amœboid leucocytes. The blood everywhere black, thick, and indisposed to flow; no bacteria found in it. Œdema of the glottis, which doubtless was the immediate cause of death.

Case II.

On the 23rd January, Veterinary Surgeon Walker, in charge of the 9th Lancers, kindly invited me to see a case of "Loodiana" that was taken ill the day before. At 11 a.m. I put the thermometer in the rectum of the horse, and after keeping it in five minutes, it stood under 101°. That surprised me, but I had noticed the sphincter to be very relaxed, and occasionally it relaxed a little to allow gas to escape; yet I did not think it would affect the thermometer much, if any. However, I put it in again; and with much difficulty I held the sphincter, or at least the surrounding skin, close to it for five minutes. The temperature was then found to be 103⅛°. That shows how careful we should always be in making observations with exact instruments. I may observe here, that I always prefer the rectum to the mouth in the horse, for the reason that it can be closed better; it is often impossible to keep the mouth closed long enough, and the teeth may injure the instrument. Moreover, the air passing through the nose to the lungs, reduces the temperature of the air in the closed mouth of man, and probably of the horse also. I have made all these observations myself, with the greatest care, because I have no assistant whom I can trust to be exact enough. My thermometer is one of Arnold's, tested at Kew. At each observation I keep it in the rectum five minutes, and record the observation immediately.

I then took a drop of blood from the skin of the patient, and in less than five minutes after I had it in the focus of the microscope, when I saw what I thought were bacteria swarming in it. I made a rather hasty conclusion, because I was thinking of Anthrax, and as this disease is commonly identified with it, I was really looking for bacteria. On closer inspection, I thought they were more likely to be blood-crystals: they resembled very closely the small prismatic crystals of *Hæmato-globulin.* I have since come to the conclusion that they are worms in a very early stage of development, and I will describe them presently. The corpuscles of the blood in this horse appeared like those of my first case, but there were fewer of the white corpuscles, and the *post-mortem* appearances did not differ in any material respect. *Two hours after death* I found the *temperature of the rectum to be* 102°.

CASE III.

On the 24th January, Mr. Walker invited me to the autopsy of another horse that died of the "Malignant Fever" on the previous night. I had not seen this case alive, but I found the worms in the blood in plenty, though not so abundant as in the last case. The white corpuscles, however, were more numerous, and the red discs had not so much tendency to dissolve into each other. The general *post-mortem* appearances were of the same character as the other cases. Œdema of the glottis was the immediate cause of death in each of them.

Now, if the presence of these worms is essential to the development of this disease, it may be asked why I did not discover them in my first case. I must therefore state that, some years ago, I rather overworked my eyes with the microscope, and in order to force myself to rest them, I sold my lenses. When I was about to proceed to India, I got Mr. Swift to make me one of Brown's small clinic microscopes with the $\frac{1}{5}$th and $\frac{1}{12}$th (immersion) lenses, specially with a view to studying blood, etc., in disease. They are uncommonly good ones. But it requires some practice to handle the little instrument, and I had never used it before; besides, my eyes were out of training, and I had to get them gradually into condition for work. Though this "pocket microscope" is invaluable for clinical work, it is not adapted for such

laboratory work as I find necessary to carry on here in the investigation of a disease like the one under consideration. I have therefore sent to Mr. Swift (University Street, London) for some of his best lenses, and his improved Hartnack's stand; so that I hope by-and-by to be able to give a better account of these things.

Case IV.

February 12th, 1878.—No. 2, H.C., R.H.A., bay gelding, "Waler," aged eight years.

About 1.45 a.m. this morning the farrier-sergeant reported to me that this horse was ill. I was with the animal by 2.15 a.m., and found him apparently suffering only from active congestion of the lungs—so far as the general symptoms indicated. Respirations 25, and very laboured; extremities cold; neck cool; body under the blankets warm and perspiring freely; pulse not distinct at the jaw. I had no stethoscope with me, and the perspiration was so disagreeable that I did not auscultate by the direct application of the ear to the chest. The expression of the eyes was very peculiar, indicating affection of the brain, probably due to venous congestion. The pupil of the near eye was dilated, and did not contract before the lamp; the fundus had a very greenish tinge; conjunctivæ of both eyes very highly congested, as was also the mucous lining of the nose, which had a bluish tinge. He was rather restless, and staggered when he walked. Temperature of the rectum 101⅜°—which I thought was low enough to exclude Malignant Fever.

The history of the case was, that he had been sent to the infirmary yesterday, at 1 p.m., for "Shivers." The remaining portion of his feed and grass were taken with him. When he arrived at the infirmary he had ceased shivering, and he went on eating his feed and hay until he finished them. He looked so well that the farrier-sergeant thought it was not necessary to report him to me, but he was kept at the infirmary because the weather was very wet and cold to stand out. Several other horses had also been sent to the spare stalls, simply for protection from the weather. This horse had been under cover up

to the 9th inst., when the horses were all turned out of the stable in order to repair the floor. At evening feed he left a little of the corn behind, but went on eating the grass until he finished it. The farrier-sergeant thought he was quite well at 7 p.m. At 1 a.m. this morning, the "jemadar" noticed the horse lie down and roll as if in pain. The farrier-sergeant was sent for, who found him standing, and "breathing hard."

The history, therefore, as well as the general symptoms, indicated a chill, followed by very acute congestion of the lungs. I have heard veterinary surgeons mention such occurrences, but I had never met with any case of congestion running its course so rapidly as this. I determined, therefore, to examine the blood by the microscope. Everything was ready, and in less than forty-five seconds after the blood was taken from the circulation I had it in the focus of the $\frac{1}{5}$th objective, when I at once saw the worm-like bodies, swarming with the blood-corpuscles. That was at 2.25 a.m. It was diagnostic of the "Malignant Fever." The patient was too weak to walk from the infirmary, so the other horses were turned out at once.

The horse became more restless; at 3.30 a.m. he staggered into a corner and fell. At 4 10 a.m. he died, apparently from suffocation. There had been no sign of laryngeal constriction, no swelling of the throat, and no discharge from the nose, or any of the symptoms usually regarded as characteristic of the "Malignant Fever."

As writers upon Anthrax, and upon this disease, say they are alike in having a high temperature during the early stage of the Fever, which falls often even below the normal point as death approaches; and finding the temperature of this case to be $101\frac{3}{5}^{\circ}$ two hours before death, I suspected it had been higher and was on the descending scale. The ushering in of the Fever by rigors had been well marked, and was recorded in this case thirteen hours before I found the temperature as above stated. In order to test this question, I placed the thermometer in the rectum *five minutes after death*, and found the temperature then to be $102\frac{1}{5}^{\circ}$, showing it had ascended $\frac{3}{5}^{\circ}$ during the two hours preceding. I waited another hour, to find when it would begin to descend; and at 5.10 a.m. I found it to be $101\frac{4}{5}^{\circ}$. The

temperature was diminishing, but it was still higher one hour after death than it was two hours before death.

I must now describe the appearance of the blood in detail, as I found it directly after it was removed from the circulation before the horse died. The worm-like bodies were white, semi-transparent, and the outline of a red corpuscle could be seen through them; their length varied from less than the diameter of an ordinary white corpuscle to twice its diameter; their width was about a quarter the diameter of an ordinary red corpuscle (of the horse). They were nearly all straight; some were curved, somewhat like an S. They had no independent motion; I could not make out one end to be thicker than the other, but one extremity seemed to be heavier, for they commonly floated with one end deeper in the serum than the other. They were round, for I could see the upper extreme end. I could observe no distinct organs within them. . . The white corpuscles were in great numbers, and of different sizes; many of them assumed amœboid forms. Red corpuscles formed no *rouleaux*, but they soon clustered together to form spacious jelliform masses, in which all the outlines of the individual red cells disappeared. Between these masses were left channels for the serum, in which floated the white corpuscles and the worms, with some free red discs. When the slide was inclined to one side, or the glass cover was pressed, the current carried these objects rapidly; and when the worms entered with their long diameter across a narrow channel, they readily doubled up, like the letter U, and extended again when they reached a broader part. One of them was pushed on by a white corpuscle, which it partially encircled. Many of the free red discs had a strong tendency to stick to each other's edges in a chainlike manner. In passing through very narrow channels, these pulled each other on as an oval-linked chain, and they would resume their shape afterwards, but still adhering to each other. This reminded me of what Dr. Beale states in his work "The Microscope in Medicine,"—that he noticed his own blood behaving after that manner, when he had taken a dose of salts, and he attributed it to the purgation withdrawing water from the blood; for soon after he had drank water freely, his red discs behaved themselves in a normal manner. I there-

fore introduced a very little water to the drop of blood under observation, and instantly the whole scene was changed like a phantasmagoria. All the red discs separated from each other; even the jelliform masses broke up, and every disc of which they were composed became independent, and of the normal form. That was rather instructive, as so much has been said and written about the thickness and viscidity of the blood in this disease. It thickens because so much serum is drained from it into all the serous cavities and connective tissue. The worms must absorb much of the water required by the corpuscles, and the mere presence of so many myriads of worms must thicken the fluid. What is the cause of the exudation? It is not an early symptom. I suppose the worms obstruct the circulation in the small capillaries, and exudation takes place to relieve the tension of the general congestion. The symptoms also vary, depending upon which organs are chiefly congested—the digestive, the respiratory, or the nervous.

Autopsy, five hours after death.—Body well nourished. My own observation confirms what I have been told by others, that horses in poor condition are not more subject to this disease than those in good working condition. The four cases I have seen have been horses neither too fat nor too lean. Probably the disease makes no selection; there are a greater number, in almost every battery, of horses too fat than too thin; and the majority are usually in hard-working condition during the drill season—such as this is. I may observe here, also, that I have not found the flesh becoming putrid any sooner than diseased meat usually does in the same temperature. I have kept parts of the liver, spleen, kidneys, lungs, and muscle in the pharmacy for five days in temperate weather, and they did not become putrid any sooner than morbid specimens usually do. At each of these four autopsies, I have called attention to the fact that the carcases were remarkably free from smell, and the bowels from tympany; my sense of smell is very keen, too. I make this remark because I have noticed other writers making very contrary observations. Perhaps the medicines they gave caused the tissues to be more prone to decomposition, or they probably made their observations under different atmospherical conditions.

The peritoneum in this case was healthy; there was no effusion in any of the serous cavities; there was sub-peritoneal "jelly-like" exudation at the commencement of the larger intestines, and also at the kidneys. The mucous membrane of the large and small intestines was congested throughout—more in some patches than in others. A tumour of submucous jelly-like exudation, three inches in diameter, was found in the colon. The spleen was enlarged and nodular, and congested with thick black blood, which was indisposed to flow. The liver and kidneys were congested; the lungs were more congested than any other organ. The pleura and pericardium were healthy. The bronchial tubes had much frothy, rusty mucus in them. The right side of the heart was empty and healthy; the left side contained about two ounces of blood, and the endocardium was much ecchymosed. The areolar tissue along the whole course of the trachea was very red, but there was no exudation in it. The mucous membrane of the trachea and larynx was congested, but there was no submucous exudation there. The membranes of the brain—especially the *pia mater*—were beautifully injected. Such were the general appearances.

Post-mortem Microscopic Examination.—The "jelly-like" exudation was simply the infiltration of clear serum in the hyperæmic connective (cellular) tissue; the serum contained many amœboid leucocytes. In the blood from the heart, the worms and the red discs behaved as they did in the living blood; but many of the white corpuscles were breaking up. I saw their nuclei parting from each other, and floating away independently.

The worms have a wonderful power of resisting reagents. 1st. Strong acetic acid was mixed with a drop of blood on the slide, and the worms were hardly, if at all, affected by it; I *fancied* it made a few of them show faint signs of being beaded inside, but I mention this with reserve. 2nd. A few drops of the blood were mixed with three times its bulk of strong nitric acid in a watchglass, and allowed to stand fifteen minutes; then a drop of the mixture was mixed with a little weak glycerine on the slide and examined. The usual change had taken place in the corpuscles, but I was not sure that the worms were in the least degree altered. 3rd. A few drops of the blood were again placed

in a clean watchglass, and a little more than the same bulk of caustic potash crystal dissolved in it: they were allowed to stand a quarter of an hour, then a drop of that was mixed with weak glycerine and examined. I thought some of the worms were corroded, but I was not sure that the dark spots I saw on them were not adhering granules. 4th. To a few drops of the blood was added three times their bulk of liq. potassæ (*Brit. Pharm.*), mixed, and allowed to stand half an hour; then strong acetic acid was added—more than enough to neutralise the alkali—and it was allowed to stand one hour more, when the precipitate was washed well in cold water, and after that it was mixed with glycerine and examined. I found a few worms which appeared to have resisted that treatment, but most of them had decidedly a very corroded appearance, and some I thought had a very transparent tunic enveloping a shrunken interior, which appeared as if composed of segments; these segments were not regular in size—the divisions, or segments, were five or six in number. I mention the apparent tunic cautiously; I thought I could make it out in several, but in one only did it appear distinct, and I soon lost that one.

The spleen, liver, and kidneys, were examined, and the usual condition of their cellular structure in hyperæmia and pyrexia was observed. Wherever blood-corpuscles were found, they were accompanied by the worms; but these bodies were not observed in scrapings from the uriniferous tubes at the pelvis of the kidney, nor in the bile ducts where blood had not passed.

Scrapings from the bronchial mucous membrane.—I found none without some blood-corpuscles, and with them were always the worms, as already described. The following observations, however, are of the greatest importance in the investigation of this disease.

1. I found two bodies, soda-water-bottle-shaped, with a long neck, as in Fig. 5, having five oval segments within the transparent capsule. These two were in different parts of the lungs.

FIG. 5.

2. One like Fig. 6, the cells on each side of which were very pearly, and the body semi-transparent.

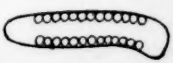

FIG. 6.

Fig. 7.

3. One oval, as represented in Fig. 7, of a yellow colour, semi-transparent, and filled with ova-like bodies.

These were found in different bronchi of about half an inch diameter. They were all very small, and could be best seen with the $\frac{1}{8}$th objective. The one with two rows of cells was the longest; it extended about $\frac{1}{4}$th the diameter of the field. I don't know whether one or other of them have any relation to the disease. They seem to me very like what I have seen in ditch-water. How they got so far into the lungs I cannot tell; I opened the bronchi in the pharmacy, immediately before taking the scrapings, and was careful not to slit up one tube before I was ready to examine the scrapings from it. It was not a dusty day. I suppose the horse snuffed the bodies in from the dried grass, which may have grown near some ditch—there has been great scarcity of grass lately—or they may have been carried by the air which the animal breathed. The practical deduction is this: that as these were carried into the lungs, so others may have been, which perhaps generated the worms found in the blood, if one of these forms was not capable of doing so.

4. But the most remarkable objects in the lungs were worm-like bodies, found innumerable in every scraping taken. I thought at first the blood-worms were merely fragments of these, seeing them together; but on closer observation, I found they differed in several respects. I said the blood-worms are round: the lung-worms appear to me to be quite flat, or tapelike. The diameter of most of the latter is nearly the same as that of the former, though they are much longer. Some of them, when uncoiled, extended across half the field of the $\frac{1}{8}$th objective; but these very long ones were also wider than the blood-worms; they were nearly as broad as a red corpuscle. The outlines of the corpuscles could be seen through them. There were very few of them not coiled somehow. Those not coiled were perfectly limp, bending every way with the current. None showed independent motion. There was a great variety of coils, but the most common forms were these two, which may be taken as typical; and it will be observed that they are both identical, except that the large one

has been flattened by the pressure of the surrounding mucus, etc. I have shown their ends free in these figures, but it was very common, and indeed most common in the small ones, for their ends to be in perfect apposition. It was only by noticing a little thickening that I could tell where the ends joined; and that was not always well marked. Nearly all of them had a small coil within the large, as I have shown. I did not see one with a small coil turned outwards; the larger seemed to be for the protection of the smaller. Many of them had a mass of spore-like bodies within the small coil, and in a few I thought I could see a very transparent capsule covering these sporules; but I mention it with reserve. There were also many of these sporelike bodies free in the surrounding fluid, as well as many coils without the group of them within. The longest open worms, and the largest coils I found, were in the larger bronchi, and the smallest coils were most numerous in the smallest bronchi. I did not find one worm uncoiled in the small tubes except the blood-worms. There was also a large proportion of free sporules in the small tubes. A small piece of the parenchymatous tissue of the lungs was pressed on the glass slide, and the exudation from it examined. I found in that a large number of small coils not larger than a red blood-corpuscle, and some even smaller, with a profusion of free spore-like bodies. Strong acetic acid, as well as caustic potash, brought to view some coils that I could not see before, and they made the others more distinct; but neither the acetic acid nor the caustic potash had any effect upon the sporules. After the addition of caustic potash, I noticed one small coil, half the size of a white corpuscle, uncoil to four times the size of the corpuscle, and it then assumed the shape of Fig. 10. At first the ends of the worm were so close together that I could not notice where they joined.

FIG. 8.

FIG. 9.

FIG. 10.

Now, I do not know what these things are,—whether they belong to the animal or vegetable kingdom. I call them worms, because they are worm-like. I know very little about parasites, but I have described what I have seen in these cases as accu-

rately as I can, in the hope that some one who reads this paper will by it be able to tell me in what direction I am to look for the source of the evil.

I am sorry that I did not examine scrapings from the bronchi in the first three cases. Possibly these lung-worms are not so constant in the disease as the blood-worms appear to be. I have shown how they differ in appearance, but I suspect they are both intimately related, if one is not the development of the other.

[Dr. Evans' investigations into the pathology of Loodiana Disease are of the greatest interest and importance, and we shall continue to look forward to their further results with eager expectation. Should his discovery turn out to be a real one, then we shall have the key to the etiology of a very serious and hitherto mysterious disease, and this may lead to our ascertaining that other obscure disorders of animals are due to a similar cause. The discovery of certain nematode worms in the blood of man and animals has already proved of great value, and the researches of Lewis, Bancroft, and Manson (whose excellent paper on Chinese Hæmatozoa recently appeared in this journal), have thrown a new light upon the origin of several diseased conditions, which will probably enable us to devise successful measures for their prevention or cure. Thus, it is extremely probable that the *Filaria sanguinis hominis*, the intermediary host of which would appear to be the mosquito, gives rise in man to Chyluria, certain forms of Hydrocele, Hæmaturia, lymph scrotum or other form of Elephantiasis; and it is surmised that a considerable proportion of morbid states—cachexiæ, nervous diseases, dysenteric and other affections ascribed to malaria, may be due to the same or some allied hæmatozoa. India offers a splendid field for research in comparative pathology; and the microscope in the hands of studious and observant veterinarians in that country will add immensely to our knowledge of animal diseases. Dr. Evans' further researches in this direction will appear in the next issue of the *Veterinary Journal*, with the description of some specimens he has sent for more careful examination and identification.—ED. *V. J.*]

ACUTE YELLOW ATROPHY OF THE LIVER.

BY T. BRIGGS, F.R.C.V.S., THE WYLDE, BURY, LANCASHIRE.

A DRAUGHT brood-mare, the property of Messrs. John Whittaker and Co., of Radcliffe, was the subject of the above-named disease. Last year the mare aborted about the sixth month, the cause being attributed to over-exertion and a large draught of cold water. The constitutional disturbance was slight, and she soon went to work again, none the worse for the mishap. On the 2nd of last May she was again "served," and worked regularly up to December. She then became lame, apparently from Rheumatism, on the off hind-leg; the lameness, which was scarcely visible in walking, but excessive in other paces, continuing in about the same degree for three weeks, a blister was applied to the hip, and the ailment disappeared. After a month or so of light work, the other hind-leg became similarly affected. It was decided not to work her again until she had foaled; she was rested, and, without any treatment, the lameness subsided.

The mare, during this time, was in good condition, and with the exception of an occasional attack of dulness and loss of appetite, which lasted three or four days at a time, she enjoyed good health. On the morning of the 26th of March she was observed to be very restive, appearing most comfortable when lying on the left side; and she would lie for an hour at a time—now and again turning her head round and sighing. When standing, she hung her head and had a very dejected appearance. She was continually shifting her feet. No symptoms of premature foaling were observable. The surface of the body was dry and hot; the extremities cold; mouth dry; respiration a little quickened, but not laboured; pulse 82, and wiry; visible mucous membranes of a peculiar bright orange tint; no alteration over the region of the liver could be detected by percussion or measurement; bowels constipated; bladder, on introduction of catheter, found empty; appetite completely gone; no thirst. A dose of oil, followed by podophyllin and sedatives alternately, was administered, and perfect quietude ordered. The next morning the mare was in much the same state; the bowels had

responded to the action of the medicine, and the fæces were of a darkish colour. Some urine had been passed, but the attendant was unable to procure any.

At 8 p.m. the symptoms were markedly aggravated; the respiration quick and sighing; pulse running down; the skin on the front of chest and on right flank was very wet with perspiration, but in other parts quite dry; the ligaments of the pelvis relaxed; *os uteri* closed; no enlargement of mammary gland; great restiveness and delirium ensued, and the mare dropped and died, in convulsions, at midnight, after an acute illness of about forty-eight hours.

On *post-mortem* examination, the liver was found little more than half the normal size; its surface was even, and of a greyish-yellow colour; the consistence soft. On section, the same greyish-yellow colour and softened consistency were noted; in the centre of the organ the structure was particularly soft. The lobular arrangement was almost imperceptible. The other abdominal viscera were healthy. The uterus contained a well-developed fœtus. The lungs were slightly congested, and the heart somewhat flabby. In other respects nothing unusual was seen.

The symptoms, during the acute attack, clearly indicated liver disease, with, possibly, some uterine complication. The autopsy, however, revealed no complication. The atrophy of the liver was certainly very striking and remarkable, but seemed, at the time, insufficient to account for such rapid dissolution. The case being, at least to me, unusual and interesting, I searched, but without success, for a recorded case in veterinary literature.

Dr. Murchison, in his published "Lectures on the Diseases of the Liver" in the human subject, gives an elaborate and beautiful account of this disease, entering minutely into the pathological anatomy and morbid changes which take place in the urine and other secretions. After reading this excellent treatise, I greatly regretted that the mare's liver had been destroyed without being submitted to a microscopic examination. No opportunity of obtaining any urine occurred. Perhaps a summary—which necessarily must be very imperfect and brief—of what Dr. Murchison says, may be interesting, and possibly instructive.

That eminent authority speaks of Acute Yellow Atrophy as a "rare but very remarkable disease, in which the liver becomes rapidly atrophied, with the development of jaundice and cerebral symptoms, and where, after death, what remains of the organ is found to be extremely soft and yellow, with no appearance of lobules, and with the secreting cells in a great measure, or wholly, broken up into granular matter and oil globules." He goes on to say that, out of 15,000 cases admitted during six years into the London Fever Hospital, only one example of the disease was noted. "The premonitory symptoms are variable, and sometimes absent: loss of appetite and irregular bowels, with slight pyrexia;" "rheumatic pains, and an uneasy sensation in the region of the heart, together with a feeling of uneasiness which the patient is unable to define, are the most common. These symptoms may last three or four days, or as many weeks; but, withal, there is not, as a rule, thought to be much amiss, while in not a few cases the patient has no feeling of indisposition until the supervention of symptoms of a more decided character." Jaundice, rarely intense, is invariably present, and is usually the first symptom which attracts notice. "In the course of a week or ten days, one-third, or even more than one-half, of the liver may disappear."

The disease mostly attacks females during gestation; a gravid uterus is a predisposing cause, and "pregnant females almost invariably abort or miscarry before dying."

SINGULAR CASE OF HEART-DISEASE IN A HUNTER. EXTRAORDINARY ANTE-MORTEM CLOT.

BY MESSRS. CARTWRIGHT & HILL, F.R.C.V.S., WOLVERHAMPTON.

YESTERDAY, the 29th March, our junior partner, Mr. R. H. Cartwright, made a *post-mortem* examination of the horse from which the heart sent per train to-day for your inspection was taken. You will perceive that there is both hypertrophy and valvular disease; but we more particularly wish to call your attention to the presence of an unusually large *ante-mortem* clot

attached to the valve and cords, filling fully two-thirds of the ventricle and a considerable portion of the auricle—the latter being nearly blocked up with the detached dense fibrous portion severed in the examination.

The animal in question was six years old, and belonged to the Albrighton Hunt stud. During the latter portion of last season he had an excessively hard day, and exhibited considerable distress: but this he apparently got over. He commenced the present season well, and continued his work without failing until within six weeks of his death, when he declined in health and spirits, but still continued work. On the last day of his life (the 28th) he was ridden with the hounds. No sport was shown until towards five o'clock in the afternoon, when there was a run of about two hours, and finishing a long distance from home. A few minutes after entering the stable he fell down and expired.

The wonder is that the animal had been enabled for so long a time to do *fast work* with such a cardiac condition. The bulk of the *ante-mortem* clot must certainly have been present for a considerable period; and the obstruction to the circulation, one would have thought, must have been attended with fatal results at a far earlier date.

We think the case interesting, pathologically, and the specimen of morbid anatomy a valuable one.

[The clot referred to by Mr. Hill was situated in the right ventricle, attached to the auriculo-ventricular valves, and extending upwards into the auricle, as well as downwards to the apex of the ventricle. It consisted of dense fibrinous layers, and measured four inches in breadth, while it varied in thickness from $\frac{1}{16}$th inch to $1\frac{1}{4}$ inch. The heart was much enlarged, the muscular tissue pale and soft, and the ventricles much dilated. The valves on the left side were healthy; and it was only at the point of attachment of the clot that any indication of disease could be seen on the right side.—W. DUGUID.]

A SUPPOSED CASE OF TYPHOID FEVER IN THE HORSE.

BY J. ROALFE COX, F.R.C.V.S., LONDON.

THE horse to which the morbid parts forwarded belonged, was one of three at the same establishment, and which presented Typhoid symptoms. But the other two had catarrhal and pulmonary complications, rather than those of an intestinal character; though in all there was the same marked depression, quick and feeble pulse, and *high temperature.* The horse under consideration, about twelve days before death, was first observed to be ailing. There was loss of action of the bowels, evidence of suffering from dull pain, listlessness, and inappetence. At the commencement, the case was looked upon as one of constipation, and a *moderate* amount of relief followed the administration of laxative medicine. It was after this, however, that the peculiarity of the case became marked, and I had the horse conveyed to my infirmary for observation.

At this time the bowels were again inactive; there was tympany; the pulse numbered 90, and was feeble; the temperature was 106°. The animal was listless, occasionally lying down, with evidence of dull pain. Whiskey was now given to the amount of ℥vj., together with spts. chloroform and liq. ammoniæ, and gruel at night.

Next day the temperature was 104°, pulse 60, and liquid dejections frequently escaped involuntarily; these had a peculiar sickly odour, which persistently remained in the loose-box. On the whole the horse appeared to be better. He had oatmeal gruel during the day, and the same quantity of whiskey morning and evening. But the cessation of action of the bowels continued; at a later period the temperature was 106°, pulse 110 per minute; and altogether there were slight changes for better and worse day after day. As there was much thirst, he was allowed water *ad libitum,* with occasionally a little hyposulphate of soda added thereto. Milk was also prescribed. On Sunday night a great change was observed: there was no action of the bowels; the tympany was very great, and collapse rapidly ensued and terminated in death.

Post-mortem Examination.—On opening the abdominal cavity, a notable quantity of fluid was observed, of the same character as that contained in the bowels: it was lying among the convolutions of the intestines—a proof that there must have been perforation of the bowel previous to death. I did not trace the perforation, however. The intestines were full of a yellow liquid, which had a most offensive smell; there was not a particle of solid matter in them. The peritoneal coat of the stomach exhibited numerous rose-coloured spots on its surface, while the internal mucous membrane showed the deeper-tinted patches. The colon is sent for inspection. The greater portion of the intestines—apart from this portion—were also thickened by submucous infiltration, and were somewhat uniform in colour.

To my mind, the inaction of the bowels in this case amounted to paralysis, and I think might be due to the direct depressing influence of the Typhoid affection.

If this case was one of Typhoid Fever, it is interesting as controverting the assertion that such a disorder does not affect the horse: though to this view I am not disposed to subscribe.

[The specimens sent by Mr. Cox were portions of the stomach and double colon. The mucous membrane of the stomach was congested and thickened by a considerable amount of submucous exudation; the other coats were healthy. Several feet of the colon were in a state of gangrene, the mucous membrane breaking down; and in some places the muscular coat had all but disappeared, leaving only the peritoneal coat intact. At the point where this condition of the intestine commenced, there was a well-defined line of separation, the mucous membrane being perfectly healthy up to this point. The cause of this necrotic condition was arrest of the circulation, by the formation of firm clots in the branches of the mesenteric artery supplying this portion of the intestine. A clot of three inches in length, and extending into the smaller vessels, was found in one of the larger branches of the mesenteric artery.—W. DUGUID.]

ANTHRAX IN OUR DOMESTIC ANIMALS.

BY A. E. MACGILLIVRAY, V.S., BANFF, N.B.

DURING the last two months, I have met with so many cases of anthracoid affections, that I feel anxious to again call attention to the subject; and I do this the more readily, when I see not only other members of the profession from all corners of the world doing so, but also scientific men of every grade prosecuting minute investigations into the nature and dissemination of this deadly assailant of animal life.

Since I sent the communication on this subject which appeared in the March *Journal*, I have met with the disease in horses, cattle, sheep, and poultry; and my intention is to offer a few remarks as to the symptoms and *post-mortem* appearances observed in each class of animals.

First, as to horses. Within the period stated, I have seen three two-year-old colts succumb to the disease. Two of them died within six hours after being attacked, and the third lingered on for about eighteen hours. The two which died so quickly never showed any signs of violent distress—such as colicky pains; one of them lost the faculty of standing at the very commencement of the attack, and in this case the thermometer showed 96° F. internal temperature about three hours before death; the other generally stood in one position, but occasionally lay down, and in this case the thermometer marked 106·5° F. about two hours before death. In both these cases there was very tumultuous action of the heart. The third colt, which lived eighteen hours, was extremely distressed and violent through the whole attack, and got immense doses of laudanum, solid opium, and chlorodyne, to keep him quiet. In this case, almost from the beginning of the attack, there was seen the characteristic symptom of a protruded and infiltrated rectum. The thermometer registered 105·5° F. within an hour of death.

In the first case the *post-mortem* appearances were analogous to those generally met with in cases of internal (abdominal) "Charbon" in cattle; so I need not particularise them.

In the second case, I made a most minute *post-mortem* examination, the results of which completely confirmed my previous

diagnosis of Anthrax. In this case, about three hours before death, most profuse diarrhœa set in, accompanied by very abominable effluvia. In the subcutaneous cellular tissue there was a good deal of yellowish effusion in large patches, and several black spots of extravasated blood, all over the body. On opening the abdomen, I found the intestines loaded to distension with a yellowish (apparently effused) liquid, which had an abominable smell; the mesentery was also loaded with yellowish and partly coagulated effusion; while here and there, all through the intestines, appeared the characteristic black spots (from one to three inches in diameter) of extravasated blood. The thoracic contents were in a like condition—the heart being much altered, and its tissue disorganised; there was very little blood in any of the vessels throughout the body, and what was found was very black and non-coagulated.

Second, as to cattle. With the exception of two cows in calf, rising four years old, the cattle attacked by Anthrax have shown the usual "Quarter-ill" symptoms, and were all young stock, which it would be useless to detail here.

The two cows in calf, however, presented exactly the same *post-mortem* appearances as seen in the case of the second colt above detailed. The yellow, and partly coagulated, infiltrations, and black extravasated bloody spots, were both extensively found and well defined. These cows, like the colt, died without any struggling, or even restlessness. In one of them the thermometer ranged high; the other I neglected to ascertain. Both were off their feed, and dull and listless; the mucous membranes were yellowish, and the urine high-coloured. Both died within twenty-four hours.

Third, as to sheep. The cases of Anthrax in sheep coming under my notice have all occurred in pregnant ewes. In every case the chief symptoms have been great dulness, reeling gait, loss of power of standing, complete loss of appetite, costiveness of bowels, emission of badly-smelling gas from both ends of digestive canal, congestion of lungs, coldness of extremities, and death within twenty-four hours. *Post-mortem* appearances generally resembling that of the first colt above referred to, with the addition of very dark lung tissue, completely infiltrated in

every part with black *fluid* blood; considerable emphysema was also present in the lungs, resulting probably from the partial disintegration of their parenchyma.

Fourth, as to poultry. On the 6th of March last, I received a note from a gentleman in this locality, stating that he had "within a few days lost twelve hens and two turkeys," and he suspected "something was wrong"; in fact, he suspected *poison*. Along with this note, he sent the *crop* and *gizzard* of one of the dead hens; but I could detect nothing wrong with either of these. Subsequently there died other seven hens, one cock, and one turkey—making in all nineteen hens, one cock, and three turkeys!

I cannot speak positively as to the symptoms, as I did not see any of the ailing poultry during their illness; but I understand that diarrhœa was pretty constant, and the evacuations were more or less of a bloody description, and had an abominable smell. I, however, made *post-mortem* examinations of the bodies of two of the hens and the cock; and I found the following abnormal appearances: in the two hens the disease was chiefly confined to the ovary, ovules, and oviduct; some of the ovules were black and "tarry-looking" to their very core; there was also considerable bloody infiltration about the kidneys, and some discoloration, and very bad smell about parts of the large intestines. In the cock a prominent symptom, while alive, was a fœtid and bloody diarrhœa; and after death I found the disease most distinctly marked about the heart, muscular part of gizzard, rectum, and their immediately contiguous parts.

During the summer of 1877, I was consulted about a most remarkable outbreak of this disease, which occurred among the poultry on a farmyard in this district; and from first to last more than fifty hens died. Several *post-mortems* were made; and in all, along with other and variable appearances, the ovary, ovules, and oviduct, were more or less affected. In this instance the poultry were in prime condition; and, in several cases, on noticing the first symptoms of illness, the owner killed them for the table; but on opening them, and finding the ovules quite black and bad-smelling, he threw the whole on the dunghill!

Was it owing to the extreme vascularity of the ovary, ovules, and oviducts, that they were so invariably affected?

Editorial.

HORSE-FLESH AS HUMAN FOOD.

Some years ago, M. Decroix, Principal Veterinary Surgeon in the French Army, moved by economical, philanthropical, and humane impulses, essayed to introduce the flesh of horses, mules, and asses, as food for people. The attempt was commenced in Paris, and certainly with but little expectation of immediate or even prospective success. Prejudice was strong against the use of this flesh; and not only had this to be contended with, but a large amount of ridicule was lavished upon the "hippophagistic" movement, and had also to be overcome. Even the more sensible and serious opponents of hippophagy asserted that good horses would be too expensive to convert into food, while the flesh of old horses would be too hard and tough for mastication and digestion. In 1866, the French Government authorised the sale of *la viande de cheval*, and a *boucherie* was established in Paris. In that year only 902 solipeds were disposed of for human nourishment; but in 1869, 2,758 had been sold with this object; in 1872 the number was 5,732; and in 1875, 6,865. Since that time the sale of horse-flesh has greatly increased in Paris, where there are now a large number of shops in which it is sold. These shops are likewise numerous in all the large towns of France, and the new movement has extended to other countries. Everywhere, of course, the chief difficulty to be surmounted was the long-standing and deep-rooted prejudice to the consumption of horse-flesh as food; but this soon disappeared when the benefits derived from Decroix's efforts became apparent.

Some time since, an abortive attempt was made to popularise horse-*beef* in England; for nothing was done beyond having a banquet, at which this material was served up in various ways, and the occasion offered a grand opportunity for the intellectual sallies of the witlings of the period. Decroix believes that the aspect of affairs has changed since then, and the great success which has attended his efforts elsewhere has emboldened him to venture the introduction of *viande de cheval* into the English metropolis; and a shop for its sale has been opened in Castle Street, Leicester Square. It is almost impossible to prognosticate what measure of success will attend this bold step; for it cannot be denied that food-prejudice is perhaps stronger in Britain than in any other European country. But if enthusiasm and perseverance in a good cause—for, as has been said, the spirit of the movement is essentially philanthropic and humane—can ensure a successful issue, there can be no doubt as to the result.

From an economic and scientific point of view, there is much to be said in favour of horse-flesh entering into the list of English butcher's meat. An immense number of horses is slaughtered every year in Britain; and if their flesh could be added to the food sources of the people, a great boon would be conferred, and especially if it were sold at a lower rate than ox-beef—as has been the case in other countries.

This flesh is eminently nutritious, and there is nothing whatever disagreeable about it, either when raw or cooked—as we can testify from personal experience. The horse is a far more dainty and clean-feeding animal than some others—and especially the pig—whose flesh is a staple commodity in the dietary of high and low, rich and poor. He is much less infested with entozoa, and of these we do not know of any which are likely to make mankind their host; while he is only liable to one disease—Glanders—which renders his uncooked flesh dangerous. Therefore, from a sanitary point of view, the use of horse-flesh as food is to be commended. By the humanitarian, and particularly the admirer and lover of horses, Decroix's efforts should be gladly welcomed and supported. There can be no doubt that if the flesh of horses could find its way to the butchers' stalls, these most useful and good servants would be spared a terrible amount of cruelty now inflicted upon them when worn out. Their existence would be earlier terminated, and for some time before death they would be allowed to rest, and would receive good food. Very different is their lot, as a rule, at present.

We may remark that every care is taken in the selection of healthy horses for the butchery, and they are scrupulously examined before and after they are slaughtered. Indeed, nothing appears to have been omitted in order to render horse-flesh acceptable as an article of diet; and we can scarcely entertain a doubt that the movement instituted by M. Decroix—who is one of the most distinguished veterinarians of France—will meet with the hearty approval and countenance of the veterinary profession in this country, as well as by all those who desire that horses should be spared the tortures inflicted upon them before they go to the dogs or reach the knackers.

SWINE PLAGUE.

[We have on several occasions drawn attention to the destructive contagious disorder of swine known in this country as "Pig Typhoid"; and in commenting upon its pathology, we pointed out that the malady in question differed in most important points from human Typhoid, and that the designation was therefore erroneous and misleading. This conclusion we arrived at from personal investigation. The recent researches of Klein and others confirm our views; and the later investigations of Klein, in addition to their great interest and value, establish the fact that it is a specific malady peculiar to the porcine species. We have much pleasure in publishing the following report of these investigations, which was read before the Royal Society in February, and for a copy of which we are indebted to the author. Discarding the erroneous name, "Typhoid," hitherto given to it, we are inclined to adopt that proposed by Klein. The disease is known in America as "Intestinal Fever."—ED.]

"*Experimental Contribution to the Etiology of Infectious Diseases, with special reference to the Doctrine of Contagium vivum.*" By E. KLEIN, M.D., F.R.S.

THE present communication has for its object to bring before the Royal Society the results of an experimental inquiry* into the etiology of an

* This being part of a larger research carried out for the medical officer of the Local Government Board, with whose permission the present communication is made.

infectious disease of the pig, known as Hog Plague, Mal Rouge, Red Soldier, Malignant Erysipelas, or also Typhoid Fever of the Pig. There are English and Continental writers who describe the disease as Anthrax, or Splenic Fever of the Pig. I shall show, however, conclusively, in my report to the medical officer of the Local Government Board, that it is neither Typhoid Fever nor Anthrax, but is an infectious disease of its own kind, which I propose to call "Infectious Pneumo-enteritis of the Pig" (*Pneumo-enteritis contagiosa*).

Like other infectious diseases, the "Pneumo-enteritis" possesses an incubation period, followed by constitutional disturbance and certain anatomical changes. These latter are invariably affections of the lung, of the intestine, and of the lymphatic glands, not only of those of the organs of respiration and alimentation, but also those of the inguinal and lumbar regions. In the lung, the changes are those known to pathologists as Lobular Pneumonia. In the alimentary canal, the mucous membrane of the large intestine is chiefly affected, being the seat of smaller or larger ulcerations. There is generally also inflammation of the serous membranes, especially the peritoneum, leading to an exudation of lymph into the serous cavity. The skin is occasionally affected with greater or smaller red patches.

There are hæmorrhagic patches to be found in the lung and serous membranes, the endocardium, and the muscle of the heart, the mucous membrane of the intestine (especially the duodenum and large intestine), the tongue, and occasionally also the liver and spleen,—only seldom in the skin and kidney.

In anatomical respects, therefore, the Pneumo-enteritis bears undoubtedly a great resemblance to Anthrax or Splenic Fever. There exists, however, a marked difference between the two diseases in the incubation period, the general pathology,* and especially in the anatomical character of the spleen and blood. In Splenic Fever we find the spleen invariably enlarged, being the principal organ of the affection, whereas in Pneumo-enteritis it is only occasionally changed. And, likewise, the blood presents entirely different characters in the two diseases; in Pneumo-enteritis it is not different in any marked degree from normal blood, whereas in Splenic Fever it is of dark colour—lakey, and does not coagulate at all, or only imperfectly so. Besides, the blood in Splenic Fever contains the now famous *Bacillus anthracis*, and hence its conspicuous infectious property; whereas in Pneumo-enteritis the fresh blood does not, as a rule, contain any foreign matter, and in most instances does not possess any infectious property.

Another disease with which Pneumo-enteritis bears a great resemblance on account of certain anatomical characters—viz., inflammation of serous membranes, lung, intestine, and lymphatic glands, hæmorrhage in lung, serous membranes, endocardium, muscle of heart, intestinal mucous membrane, and other organs—is specific Septicæmia.†

The resemblance, however, is not greater than to Splenic Fever, although the differences are not less well defined. Besides others, there is this great distinction—that in Pneumo-enteritis the contagion spreads by simple cohabitation, and through the air, which it never does in Septicæmia, as in this the virus always requires a broken surface through which to enter a healthy

* In Splenic Fever, the period of incubation ranges from between a few hours to several days; in Pneumo-enteritis it varies from two to five days and more. Splenic Fever is easily transmissible to man and the domestic animals, whereas the transmissibility of Pneumo-enteritis is much more limited. Hitherto I have succeeded in communicating it to rabbits, guinea-pigs and mice, although only with difficulty.

† Specific Septicæmia as distinct from septic infection. See Dr. Burdon-Sanderson's lectures at the University of London, 1877.

individual. Pneumo-enteritis is occasionally described as "Malignant Erysipelas" (*Mal Rouge*, "Red Soldier"), but this is in so far inadmissible, as the affection of the skin in the former is a very inconstant symptom, and in milder forms of the disease is invariably absent. More recently Pneumo-enteritis has been regarded as Typhoid Fever of the pig. From a purely anatomical point of view, the resemblance between real (*i.e.*, human) Typhoid Fever and Pneumo-enteritis is very slight indeed: so slight, in fact, that to mention it implies a total oversight of some of the most prominent symptoms, —*e.g.*, inflammation of lung and serous membranes, enlargement of inguinal, lumbar and bronchial lymphatic glands, hæmorrhages in the endocardium and muscle of the heart in Pneumo-enteritis, on the one hand, and swelling and ulceration of the lymphatic glands of the small intestine, swelling and inflammation of the spleen in real Typhoid Fever, on the other hand. The resemblance seems to be limited solely to the fact, that in both diseases there occurs ulceration in the intestine. But the distribution, the nature, and the development of these ulcerations is totally different in the two diseases.

Having said thus much as a prefatory explanation, I proceed to state the results of the experiments.*

The experiments refer to the following series :—

1. Experiments showing that the fresh blood of diseased animals does not, as a rule, contain the virus, as it fails to produce the disease when introduced into a healthy animal.

Four animals were inoculated (at different times) with the fresh blood of diseased animals. They remained healthy. When subsequently inoculated with virus-containing matter, they became smitten with the disease.

In a fifth instance, however, fresh blood did produce infection. [And this same blood proved active after having been kept sealed up in a capillary tube for several weeks.] This blood was obtained from a very severe case with copious peritoneal exudation; in which were found peculiar abnormally-large coarsely granular cells; the same cells were also present in the blood; so that it appears probable that the blood became charged by absorption, during life, with matter from the peritoneal exudation. This latter always contains the virus in an active state.

2. Experiments showing that fluid as well as solid lymph of the diseased peritoneum contains the virus in a very active state.

Six successful inoculations with fluid peritoneal exudation.

There is no difference of activity to be noticed between fresh exudation, and one that had been kept sealed up in a capillary tube for several weeks.

Solid lymph obtained from the peritoneal cavity of diseased animals, having been dried at a temperature of about 38° C., proves very active.

3. Experiments showing that parts of the diseased lung, ulcerated intestine, and also diseased spleen, contains the virus in an active state. Diseased parts of lung or intestine, that were dried at a temperature of about 38° C., retain their virulence unaltered.

* In all my experiments of inoculation, the *materies morbi* was used in minimum doses—*i.e.*, a drop of fluid matter, or, in the case of solids, a particle of less than the size of a pin's head. In both cases the *materies morbi* was diluted or suspended respectively in a few minims of boiled saline solution of ¾ per cent., in order to increase its bulk, and thus to facilitate its introduction. The inoculation was invariably carried out by injection into the subcutaneous tissue, by means of the fine cannula of a hypodermic syringe, necessary care being taken that this had been previously thoroughly cleaned and disinfected. After and before inoculation, the animals have always been kept isolated and in clean and disinfected places. In order to ensure reliable results (viz., that the disease in a particular case was really a consequence of the inoculation, and not of infection through other sources), care was taken that those who attended the isolated animals were not the carriers of infection.

In all cases of Pneumo-enteritis, the trachea as well as the bronchi have frothy blood-containing mucous matter, possessed of infectious properties. It must be, therefore, supposed that the breath of a diseased animal is charged with the poison. On account of the diseased state of the intestine, also, the dung is to be regarded as infectious.

4. Experiments showing that infection is produced by cohabitation with a diseased animal, or by keeping healthy animals in a place whence a diseased animal had been removed.

5. Several experiments were made to see whether feeding healthy animals on matter obtained from the diseased organs (intestinal ulcers especially) produces the disease. The experiment was always attended with success, if a lesion-abrasion existed in the mucous membrane of the mouth or pharynx; this was usually the case when the matter had to be introduced into the mouth while the animal was being held by assistants.

There were, however, two cases which appear to prove that the disease cannot be produced by simple feeding.

This was, unfortunately, at a time when I was not as yet acquainted with the fact that in many animals the disease is of so mild a form that it can hardly be recognised in the living animal. I have not made any *post-mortem* examination of those two animals.

But since then I have made two other experiments, in which the virus was brought directly into the stomach, by means of an india-rubber tube introduced per fauces and œsophagus. In both these instances the animals became diseased, and their intestines were most conspicuously affected.

From the last three series of experiments, we may conclude that the principal way in which contagion of Pneumo-enteritis is carried out, is through the instrumentality of the air and the food.

6. This series comprises experiments to prove that the virus can be cultivated artificially—*i.e.*, outside the body of an animal; in the case of Splenic Fever it has been successfully done by Dr. Koch.

The experiments are seven in number: (*a*), two refer to cultivations commenced with fluid peritoneal exudation; (*b*), in the five others the virus had been obtained by cultivation of dried lymph from the peritoneum of an animal suffering from the disease.

(*a.*) The cultivation of the virus for the first two cases was carried out thus:

Fluid peritoneal exudation of a diseased animal had been collected and sealed up on November 6th, in a capillary glass tube. On the following day there was present a small clot due to coagulation. A minute speck of this clot was removed with the point of a clean needle, and with it was inoculated a drop of fresh aqueous humour of a healthy rabbit. This drop had been placed on a thin covering-glass, which, after the inoculation, was inverted over a small "cell," made by fixing a glass ring* on an ordinary glass slide. The covering-glass was fastened on the glass ring by means of a thin layer of pure olive-oil. The preparation was then kept in the incubator for twenty-four hours at a temperature of 32° to 33° C. After this time it was used to inoculate a new drop of aqueous humour in a similar manner to the one just described. We will call this the second generation.

This new specimen was placed in the incubator, and kept there at a temperature of 32° to 33° C., for another twenty-four hours. In the same manner a third generation was started, by inoculating a fresh drop of aqueous humour.

* The glass ring I used is 0·5 to 2 millimetres high, about 2 mm. thick, and about 18 mm. wide. If the preparation is to be observed on the hot-stage of the microscope, instead of the ordinary glass slide, one of only 0·5 mm. thickness is chosen in order to bring the preparation more rapidly up to the desired temperature.

After having been kept in the incubator for several days, it was used to inoculate two animals at different times. Both animals became infected with the disease.

(*b.*) The other five experiments were carried out with virus cultivated from solid lymph of the peritoneum of a diseased animal. The lymph had been dried at 38° C (see series 2). A small particle of dried lymph is crushed into fine powder. With a granule of this a drop of fresh aqueous humour is inoculated in the same manner as above described,—first generation.

After having been kept in the incubator for two or three days at a temperature of 32° to 33° C, it is used to inoculate a second generation, care being taken to use a trace only of the fluid part and not to come in direct contact with the original granule, which may be still discerned in the preparation.

The specimen representing the second generation is kept in the incubator for a day or two. It is then used to inoculate a fresh preparation,—third generation. And, finally, this is used for establishing a fourth generation. After having been kept in the incubator, a part of it is used for inoculating *two* animals, the inoculation being carried out at different times.

Both these animals became affected with the disease. Another portion of this fourth generation was used to start a fifth generation, then a sixth, a seventh, and an eighth generation. With this three animals were inoculated at different times. All three animals became diseased in due time.

In order to correctly interpret the results of this last (sixth) series of experiments, it is important to mention that inoculation with dried lymph, diluted far less than would correspond to the third generation in the last-named experiments, is followed by a negative result.

The microscopic examination of the cultivated liquids, proves that these are the seat of the growth and development of a kind of bacterium, which has all the characters of *Bacillus subtilis* (Cohn). The Bacillus in our case is a very fine and delicate rod, thinner than both that described by Professor Cohn in hay-infusion, and the *Bacillus anthracis* so thoroughly investigated by Dr. Koch.

Our Bacillus differs also in other respects from *Bacillus anthracis*, inasmuch as it possesses a moving period,—the *Bacillus anthracis* described by Dr. Koch is non-moving. Like *Bacillus subtilis* of hay and *Bacillus anthracis*, our Bacillus grows under favourable conditions into long leptothrix-like filaments, which occasionally form more or less complex convolutions.

In these filaments highly refractive spores make their appearance. These become free after the disintegration of the original filamentous matrix. The fully developed spores of our Bacillus differ from those of hay-bacillus and Anthrax Bacillus, by being more distinctly cylindrical and much smaller.* According to Professor Cohn (*Beiträge zur Biologie der Pflanzen* ii. 2 1876, p. 264), the long diameter of the spores of Bacillus of hay and also of Anthrax—for both are identical in morphological respects (*l.c.*, p. 275)—amounts to 0·001 5—0·0022 mm., or $\frac{15 \text{ to } 22}{2500}$ths of an inch, whereas the spores of our Bacillus are little less than 0·0005 mm. or $\frac{1}{2000}$ th of an inch in their long diameter.

At first I misinterpreted the spores, regarding them as a kind of micrococci, and only after repeated observations have I succeeded in tracing them through their different stages of development.

After many failures—owing to the introduction and development of bacterium termo—I succeeded at last in obtaining, already in the second generation of original virus, a pure crop of Bacillus and its spores. With these I

* In the figures accompanying Koch's paper on *Bacillus anthracis* (*Beitr. z. Biologie d. Pflanzen* ii. 2, 1876), the spores are represented in many places as more or less spherical in shape.

started several separate cultivations, in which the germination of the spores into delicate Bacillus, the swarming stage, the rapid multiplication by division, their growth into long apparently smooth filaments, and, under sufficient access of air, the formation of the bright cylindrical spores could be distinctly traced.* (No other organisms appeared in these cultivations.) These were again used to inoculate other preparations of aqueous humour, and so on, until I succeeded in obtaining considerable quantities of liquid, containing only Bacillus and its spores. The last-named animals were infected with liquid of this kind.

Seeing that Splenic Fever, Pneumo-enteritis, and Specific Septicæmia possess a great affinity in anatomical respects, and seeing that in Splenic Fever and Pneumo-enteritis the *materies morbi* is a definite species of Bacillus—the difference of species being sufficiently great to account for the differences in the two diseases—we may with some probability expect that also the third of the group (viz. Specific Septicæmia) is due to a Bacillus. This, however, remains to be demonstrated. It seems, finally, justifiable to speculate whether or not we have in these three varieties of disease "a variation of species" in the sense of the evolution theory.

THE JAPANESE AGRICULTURAL COLLEGE.

FROM the *Japan Gazette*, of January 25th, we learn that at last the Royal Agricultural College in that country has been opened, and the course of instruction commenced. This, the first agricultural school attempted in Japan, is situated on the plain of Komaba, to the north-west of Tokio, the capital. It is established on the model of our own Agricultural College at Cirencester, the details of which appear to be pretty closely followed out, not only with regard to the farm buildings, but also in the professorial staff—five in number, and selected from the English establishment. The College was opened in state by the Mikado, on January 24th, who, together with several members of the imperial family, ministers, and other high officials, were

* In the convolutions of the filaments, the outlines of these latter become gradually lost after the spores are formed. The spores appear now to be embedded in a transparent gelatinous matrix. At the edges of such masses, or where they are in a sufficiently thin layer, the linear arrangement of the spores can be still recognised. But there is undoubtedly a transparent jelly present in these masses forming the ground substance for the spores and fibres. Professor Cohn mentions (*l. c.*, p. 263) a similar jelly in the convolution of hay-bacillus. I entirely differ from Dr. Koch with regard to the mode of germination of the spores of Bacillus. Koch states (*l. c.*, p. 289, and also in his latest paper on Bacteridæ, in *Biol. d. Pfl.*, 2 Bd. 3 Heft.), that it is not the highly refractive spore which directly produces the Bacillus, but that the hyaline gelatinous envelope surrounding each spore elongates so as to form the Bacillus, while the bright spore-matter itself gradually diminishes and finally disappears. From *à priori* reasons it is impossible to assume that this can be so—viz., that the gelatinous envelope should grow into the Bacillus; for Cohn proved beyond doubt that in the case of hay-bacillus, the spores germinate even after having been exposed to boiling heat. Surely this gelatinous envelope, if living protoplasm, must become, under these conditions, deprived of its germinating power. Direct observation proves that, in my case, the spores possess another membrane within that gelatinous envelope, and during germination this inner membrane is broken at one pole, and the contents of the spore protrudes and grows as the Bacillus. This is also in accordance with the observations of Professor Cohn, for this authority states (*l. c.*, p. 265): "Die Sporen schwollen etwas an und trieben an einem Ende einen kurren Kesinschlauch."

received by the Home Minister. His Majesty spoke to the following effect :—

"We think that farming is one of the principal sources of the prosperity of a country. By its means the people raise a variety of useful articles, and so become wealthy. Farming also assists materially in the advancement of science. And now that this College has been erected for the development of the science of agriculture, we take great pleasure in being personally present at the opening ceremonies, and wish the institution every success. We hope that its influence in the advancement of science and in promoting the welfare and prosperity of the people will be great."

The keys of the building were then handed to the Emperor, from whom they passed to the Home Minister, who delivered the following address :—

"Your Majesty the Emperor, on receiving the report of the completion of the buildings of the Agricultural College, graciously resolved personally to perform the opening ceremony. Your Majesty has, in your wisdom, declared the science of agriculture to be a most important one, and it is a fortunate thing both for the country and the people that your Majesty, by establishing this school, where agriculture will be treated as a science, increases the fertility of the soil, and the prosperity of the people. Your Majesty's servant Toshimichi will bear in mind your wise intentions, and devote himself with zeal and diligence to this task. From this day the agriculture of our country will gradually improve, the soil become more productive, the people more wealthy. I, Okubo Toshimichi, Minister of the Home Department and your Majesty's servant, most respectfully offer my congratulations on this 24th January, the 11th year of Meiji.

The keys having again been handed to Professor McBride, who is in charge of the veterinary department of the school, and is also its director, he spoke as follows :—

"Your Majesty the Emperor has graced the opening ceremony with your presence, and your foreign servants, J. A. McBride and his colleagues, feel greatly honoured by this act. Your foreign servants, having been appointed teachers of agriculture, bear a heavy responsibility, and, thanking your Majesty for the favour conferred, we shall briefly state what we consider to be our duty. In our opinion the wealth of a country has its root and foundation in agriculture. Your Majesty has always taken great interest in agriculture, and we, your foreign servants, feel the responsibility we are under to teach the pupils of the College the science of agriculture in all its branches. At present the best methods of choosing seeds, sowing, feeding cattle, using manure, etc., have been closely investigated in Europe, and tools and machines for agricultural purposes have been improved and multiplied. We, your foreign servants, will attend to these matters, and, by giving both theoretical and practical lessons in farming, we hope to hasten the progress of agriculture in your Majesty's dominions."

His Majesty replied :—

"The buildings of the Agricultural College being completed, we, the Mikado, now declare the College opened. We hope that you will co-operate with our intention to improve agriculture by teaching your pupils, and thus advance farming in our country."

The Emperor having re-entered his carriage, the imperial procession left in the same order as that in which it arrived ; and the grounds and buildings were thrown open for the remainder of the day to the general public.

The farm contains upwards of 120 acres of ground, until quite recently overrun with bamboo grass, which has pretty well exhausted what fertility it might have possessed. This, however, is of little importance, as the intention is to teach the students what effects can be produced in all kinds of soil by proper systems of manuring, and attention to change of crops. 137

pupils are already entered on the books of the institution, which is intended for 150 students. Of these 100 are to be supported and trained at the expense of the Government, and the remainder at that of their friends. It appears that no expense has been spared in provision alike for their physical comfort and mental and practical training.

We shall now soon expect to learn much with regard to the animal diseases prevalent in Japan, and the special characters assumed by those maladies which are known in other parts of the world.

THE FITZWYGRAM PRIZE COMPETITION.

THE competition for these prizes will take place early in June. The terms of the competition have already been published in this journal, and intending competitors will obtain all necessary information on application to the secretary of the Royal College of Veterinary Surgeons.

OUR FOREIGN CONTEMPORARIES.

WHETHER it be that our Continental colleagues entertain a very low estimate of veterinary medicine as it exists in this country, or whether the English language proves a serious obstacle to their acquainting themselves with what is being done by the profession here, certain it is that our progress and our labours receive very scant recognition by them; indeed, with the exception of occasional notices in two or three journals, veterinary science in Great Britain might be altogether non-existent, so far as our foreign contemporaries are concerned. Perhaps the first reason is the one most likely to be correct; for until quite recently the miserable standard of professional education maintained in the schools, and the entire absence of any preliminary general educational tests by which the fitness of intending students could be ascertained, operated most powerfully in bringing disfavour and ridicule upon the veterinary profession in England, and not only among foreign veterinarians, but even with our own public. What could be thought of a profession in which the most illiterate men, after a few months' lounging about a school with their hands in their pockets, and listening to a few discursive stereotyped lectures—the greater number of which they were perhaps unable to comprehend—could become graduates?

The painful and most degraded position which this most important branch of medicine has been allowed to hold in this country has not been due to a non-appreciation of its value—for the public had very little opportunity of learning that—but to the ever-to-be-lamented want of education, general and technical, of only too many of its practitioners. Thanks to the energetic action of the Royal College of Veterinary Surgeons, which appears to have disentangled itself from the fetters that rendered it a merely passive instrument in the hands of those who opposed all improvement—perhaps because they were afraid of it—there has been, and there is still, a good prospect of rapid amendment. This greatly improved state of affairs is almost coincident with the advent of the *Veterinary Journal*, when the profession, for the first time for very many years, found itself represented, politically and scientifically, by an independent and impartial organ, which had no mere school interests to serve, and was devoted solely and wholly to the general good. The history of the last three years will amply testify to the success which has attended the efforts of the Royal College of Veterinary Surgeons, and of

those who have conducted and maintained the character of this journal. Suffice it to say, that in this country veterinary medicine was never so ardently studied by its graduates or appreciated by the public, nor did its literature ever stand so high or hold so conspicuous a place, as at present.

This progress appears to be altogether overlooked by our foreign contemporaries, and those of them who condescend to notice us appear to imagine that we are still in the position we were compelled to assume before this journal was commenced—in fact, that the profession and its literature is half a century behind the age.

At least, this might be inferred from what appears in our excellent contemporary, the *Repertorium der Thierheilkunde*, of Stuttgart, in its first number of the present year. In his extracts from contemporary literature (p. 70), the learned Professor Hering alludes to the *Veterinarian* as the only veterinary journal in the English language; and then, taking that periodical as representing the present state of veterinary medicine among us, he makes some not very complimentary remarks on its behalf. With regard to the therapeutic treatment of disease, Hering finds indications which lead him to state that no change has taken place in this direction for the last fifty or more years, and that purgatives, severe counter-irritation, and the so-called fever and diffusible-stimulant treatment, are still in vogue. According to the same authority, and from the same source of information, the thermometer, microscope, or chemical analyses are extremely rarely resorted to for the diagnosis of disease. The evil effects of this omission are, in the opinion of Hering, apparent in the neglected state of our therapeutics, through the imperfect diagnoses arrived at.

Professor Hering is evidently not aware that the journal alluded to is not the only veterinary periodical in the English language, and that it does not, from any point of view, testify to the present condition of veterinary medicine in English-speaking countries. There are two other much more modern journals published in that language, and which aspire to present something better in the way of diagnosis, therapeutics, and veterinary science in general, than prevailed fifty or more years ago. The "practical" men of that period, and perhaps some of the present day, knew nothing of the thermometer, microscope, or pathological chemistry; but we can assure Professor Hering that these aids to diagnosis and therapeutical measures are by no means neglected by the younger and more scientific members of the profession in England, and the practical advantages to be derived from them are as thoroughly appreciated as in Germany. For more than twenty years we have personally resorted to these aids whenever necessary, and we know very many veterinary surgeons who have also availed themselves of their assistance.

We trust Professor Hering and other Continental authorities will not judge of the acquirements, status, or literature of the veterinary profession in these islands, by the evidence afforded in the journal which, it is affirmed, represents the ideas and medical practice of more than half a century ago. They must turn their attention elsewhere; and so far as our literature is concerned—meagre though it be, from the paucity of writers—they will find that our diagnoses and treatment, as well as our general medical knowledge, is not so much behind the age. With such an institution as the Royal College of Veterinary Surgeons, if it only does its duty, we are now in perhaps a better position to produce really scientific and useful veterinary surgeons than any country on the Continent. At any rate, the profession has its welfare in its own hands, and every one of its members can have a voice, as he has a direct interest, in its affairs. We are certainly not what we were fifty years ago, notwithstanding the witness Professor Hering brings forward to prove that we have been, as M. Zundel, in his new edition of D'Arboval's "Dictionnaire," says, "drifting into a learned empiricism" (*savant empirisme*).

Reviews.

KIRKE'S HANDBOOK OF PHYSIOLOGY. By W. Morrant Baker, F.R.C.S. London: J. Murray.

The ninth edition of this excellent handbook of physiology shows a persistent determination in its editor and publisher to maintain its reputation as a standard work on the subject. Those who remember the earlier editions, and compare them with this, cannot fail to be struck with the immense progress which has taken place in physiological knowledge. The bulky and closely-printed volume before us is nearly twice the size of the first edition, while the ground it covers is vastly increased in area. The work is well written up to date, and contains the results of all the most recent and trustworthy observations and researches in biological science, presented in a very lucid and attractive manner. The great and deserved popularity which the handbook has enjoyed for so many years, among medical and veterinary students, is certain to continue so long as the same amount of care, skill, and liberality, are bestowed upon it in successive editions. Further praise would be superfluous.

THE COUNTRIES OF THE WORLD. By R. Brown, M.A. London: Cassell, Petter, and Galpin.

Two volumes of this beautiful and very interesting work have now been published; and to those who desire a comprehensive and instructive account of the various countries of the world, presented in a particularly attractive form, and most artistically and graphically illustrated, nothing better could be recommended. Commencing with the world of a thousand years ago, Mr. Brown carries us through the Arctic regions, the fur countries of North America, Canada, the United States, Mexico, and the West Indies. Pen and pencil have done their work well, and the volumes are got up in the handsome style which characterises the literary productions of the enterprising publishers—the woodcuts being very numerous and, as a rule, excellent. We do not know of a more beautiful and useful geographical work than the "Countries of the World," and those who purchase it will be in possession of a mine of most instructive and varied information, which cannot but enlarge their notions of the globe on which we live, of its capabilities, resources, wonders, and beauties. As an educational work, this has large claims to attention.

Army Veterinary Department.

Gazette, April 2nd.

YEOMANRY CAVALRY.

Royal East Kent.—Veterinary-Surg. Thomas Jex resigns his commission.

Gazette, April 9th.

1st West York.—Alfred Hoole, gent., to be Veterinary-Surg.

Abstract of the Proceedings of the Royal College of Veterinary Surgeons, Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD APRIL 9TH, 1878.

Present—The President in the chair; Professors Brown, Pritchard, and Williams; Messrs. Batt, Blakeway, Broad, Collins, Cox, Cuthbert, Dray, Fleming, Greaves, Harpley, Smith, Taylor, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of last meeting were read and confirmed.

Correspondence.

The SECRETARY announced that the following letters had been received:—

Letters from Professors Walley and McCall, Messrs. Cartwright, Moon, Withers, and Balls, regretting their inability to attend the meeting.

A letter was also received from Mr. Reynolds, stating he was unable to attend, and asking whether it would not be irregular at the present meeting to discuss the President's motion for the suspension of Bye-laws 32 and 33.

The SECRETARY announced that Mr. Fleming had presented to the museum a specimen of diseased hock.

On the motion of Mr. BROAD, seconded by Mr. DRAY, a vote of thanks was awarded to Mr. Fleming for his presentation.

Examinations.

At meetings of the Court of Examiners, held on the 1st, 2nd, and 3rd of April, for the Pass Examination, 16 students passed and 8 were rejected.

At meetings held on the 4th and 5th of April, for the "Second Examination," 15 students passed and 2 were rejected; and on the 6th and 8th of April, 8 students passed their examination under the two and three years' system, and 7 were rejected.

The obituary notice was read.

The SECRETARY stated that 26 registers had been sold, and 21 were in hand; and, as registrar, he asked the sanction of the Council for the re-publication of the register, in order to include the new members of the profession. This was agreed to.

Some conversation arose as to whether the following question and answer, as reported in the proceedings of the last special meeting, were correct:—The question Mr. Williams asked was, whether the inspector without the sanction of the local authority could order the slaughter of diseased animals under the present Act? Professor Brown: "Certainly not; the local authority were bound in the first place to inquire into the correctness of the report. The inspector would have no such authority without the local authority delegated it."

Professor WILLIAMS said that the observation of the judge in a case against himself seemed to imply the opposite. "He had to inform the jury that, so far as he could judge, the defender had no power in virtue of his office to order the slaughter of these cows. That matter rested entirely with the local authority, who could not devolve the whole of their statutory powers upon an inspector. The duty of the inspector after the inspection plainly was (assuming that he was not acting with the assent of pursuer) to give

immediate notice, the effect of which would have been to bring into operation the statutory rules already referred to. Then, supposing both animals to have been affected with disease (Pleuro-pneumonia), the pursuer's case would not necessarily fail, because the defender had no right to give the order for slaughter." Of course he ordered slaughter, because he had always understood that an inspector was to order slaughter with the least possible delay. The inspectors had power delegated to them in general terms; but the judge in the case he had referred to said that it must be done by the local authorities in each individual case.

Professor BROWN said it was a doubtful point. The local authorities might exceed their powers, and the judge rule against them. In the present Bill the question was raised by the draughtsman, and he considered the clause sufficient to cover it.

The SECRETARY stated that a letter had been received from Mr. Powis, asking for copies of certain motions, which had been supplied.

A letter had also been received from Mr. Loch, enclosing a copy of the amended "Contagious Diseases (Animals) Bill."

A letter was read from the Clerk of the Privy Council Veterinary Department, dated 14th March, acknowledging the receipt of a letter written on the 7th March, enclosing report of the committee appointed by the Royal College of Veterinary Surgeons on the Contagious Diseases (Animals) Bill, and stating that it would be submitted to the Lords of the Council.

The SECRETARY read the following report of the Committee on the Bill:—

"At a meeting of the Committee appointed by the Council of the Royal College of Veterinary Surgeons to take into consideration a letter from the Lords of the Privy Council, relative to the Amended Contagious Diseases (Animals) Bill now before Parliament, and requesting observations thereon,

"The Committee have to report that, after carefully considering the provisions of the Bill, they are of opinion that these provisions are, on the whole, of a satisfactory character, and if efficiently carried out, will largely tend to prevent and suppress—if they do not entirely succeed in doing so—Cattle Plague, Pleuro-pneumonia, and Foot-and-mouth Disease.

"With regard to the other maladies alluded to in the Bill—viz., Sheep-pox, Sheep-scab, and Glanders and Farcy—the Committee cannot make any observations, as they are not the subject of special legislation in this Bill, like the afore-mentioned diseases.

"Nevertheless, the Committee would beg to point out that these disorders are very contagious and destructive, and should receive equal attention in proposed legislation.

"The Committee also deem it their duty to point out that there are other contagious and dangerous diseases not mentioned in the Bill, but which should be considered in dealing with this important subject. Among these maladies we may specify Rabies, Swine Plague, and Splenic Apoplexy or Anthrax Fever. They are likewise of opinion that the power of entry, in cases where Glanders or Farcy exists, or is suspected to exist, should be given to the veterinary inspector.

"With regard to the 'declaration of freedom from Pleuro-pneumonia,' the Committee consider that the period of fifty-six clear days mentioned in the Bill does not afford absolute security, as the latent or incubative stage occasionally extends beyond that time.

"In clause 20 (page 7), paragraphs 1 and 2, the Committee think that in order to ensure a clear definition, instead of the word 'cessation' of the disease, it would be better to substitute 'after date of complete recovery of the animal last affected.'

"With regard to foreign animals, the Committee are strongly of opinion that slaughter at the port of embarkation is greatly to be preferred to that at

the port of debarkation, as it would reduce in a much greater degree the risk of importing contagious disease.

"Quarantine, to be safe, will require the exercise of the greatest vigilance and skill on the part of the veterinary inspectors and superintendents.

"The Committee observe, with much satisfaction, that local authorities must appoint a member of the Royal College of Veterinary Surgeons as veterinary inspector. The urgent necessity for this step has long been felt; and its importance is now immensely enhanced from the fact that the Bill imposes such serious restrictions on owners of animals, which the employment of fully qualified and competent men can alone render acceptable to them.

"The Committee are confident that the success of legislative measures for the prevention and suppression of contagious diseases in animals, must greatly depend upon the skill and judgment of the inspectors; for, owing to the employment hitherto of very many men who were unacquainted with the nature and symptoms of these disorders, much hardship has been inflicted on stock-owners, and the objects of previous Bills have been in a great measure defeated."

Mr. BROAD moved, and Professor WILLIAMS seconded, "That the report be received."

The motion was carried.

Professor BROWN then at some length entered upon an explanation of several points in the Bill. What the Council had to apprehend was that the Scotch authorities would use their influence to get the word "veterinary" extended to include holders of the Agricultural Society's certificate. It was a point on which he should like to have the opinion of the Council with reference to the action which ought to be taken. His own feeling was that it would be far better to strike out the word "veterinary" altogether, and content themselves with the use of the word "inspector," rather than extend it to include persons to whom the word would not properly apply. This was a point upon which the promoters of the Bill probably had no strong opinions, and any representation coming from the Council might have some weight when the Bill reached the House of Commons.

Some conversation then ensued as to the best course to be pursued—some of the members urging that the word "veterinary" should be excluded before the word "inspector."

The PRESIDENT thought the best plan would be to adopt in Scotland the same expression as in Ireland, and leave the term undefined.

Mr. GREAVES thought it would be an injustice to professional men in Scotland if those who only held the Highland and Agricultural Society's certificate were admitted on an equality with the veterinary surgeons who held the diploma of the Royal College of Veterinary Surgeons. He also thought it would be a great injustice to stock-owners to appoint inspectors who were incompetent for the office. He was entirely of the President's opinion, that it would be better to leave the matter the same as it was in Ireland—namely, to call them inspectors, but to deny them the power to call themselves "veterinary" inspectors.

After some further conversation, it was ultimately resolved to give Professor Brown discretionary power as to what course should be advised.

Medical Act Amendment Bill.

The SECRETARY read the following Report of the Committee:—

A letter containing the following resolution was submitted to the Lord President of the Privy Council—Resolved: "That the last paragraph of Clause 22 is very objectionable,—that nothing in this section shall impose a fine on a person engaged solely in the cure or treatment of the diseases or injuries of animals and not of human beings,—from the fact that it protects

unqualified persons who are engaged in the treatment and cure of the diseases and injuries of animals."

The Committee suggest that either the clause should be struck out, or the words "any duly qualified person" inserted.

The SECRETARY read a letter from Professor Brown, in which he stated that on March 16th he received a letter from the Clerk of the Privy Council, stating that the Lord President had not the smallest objection to the omission of the last paragraph of Clause 22, which was only introduced with the view of preventing the possibility of any vexatious proceedings being instituted against members of the Royal College, and that he had instructed the draughtsman to remove the paragraph in question.

The SECRETARY stated that in drawing the College dividends in January last, it was found that the sum of £122 16*s.* 3*d.* consols, purchased last October for the College Fund, had been wrongly invested by Sir Samuel Scott and Co., the sum having been added to the stock of the Royal College of Veterinary Surgeons instead of the College Fund. Sir Samuel Scott and Co. had written that, for the purposes of the transfer, it would be necessary for Messrs. Cartwright, Balls, and Collins, to attend the bank, or that a power of attorney should be obtained. It was thought proper to obtain the power of attorney, and the sum had now been properly invested in the College Fund.

Finance Committee.

The report stated that the vouchers and receipts for payments during the preceding quarter had been examined and found correct. The present liabilities amounted to £130 5*s.* 2*d.*, which the Committee recommended should be discharged.

The SECRETARY explained that the discrepancy of £1 in the accounts, previously referred to, was in consequence of that sum having been underdrawn in October last, a cheque for £30 0*s.* 7*d.* having been drawn instead of for £31 0*s.* 10*d.* He asked permission of the Council to sanction a cheque for £1 0*s.* 3*d.* to be drawn, in order to rectify the mistake.

The permission was granted.

The Treasurer's accounts and balance-sheet were read and received and adopted.

Cheques were ordered to be drawn for the current expenses.

Secretary's Salary.

Mr. DRAY moved that the Secretary be re-allowed the original sum of £20 every year for hire of servants, and also be reimbursed for any deduction made on this head during the past year—namely, the sum of £10.

Professor BROWN seconded the motion, which was carried.

The Fitzwygram Prizes.

The PRESIDENT announced that instead of at Easter, as formerly, he had deferred these examinations to the summer, in order to suit the convenience of the London and Edinburgh Schools, whose sessions did not occur at the same time.

The examinations were fixed for the 1st of June, and the President, at the express wish of the Council, agreed to select his own examiners.

The PRESIDENT said that there was a motion standing in his name for the suspension of Bye-laws 32 and 33. The notice was only given on the 8th of March, and therefore the matter could not be considered at the present meeting. He wished that it could have been considered, and he thought that there were very good special reasons at the present moment why it was very desirable it should be; but it could not be considered, and there was an end

of the matter. Perhaps, however, he would be allowed to make a remark, because a misconception had occurred on the subject—namely, that the proposal he made would admit an inferiorly educated class of people into the profession. The resolution was to allow those who had studied the full term at the recognised veterinary colleges to pass the usual full examinations, only with the difference that they might pass the three examinations at one and the same time. In fact, the resolution might have been so worded, but the only thing which prevented this was the existence of Rules 32 and 33.

The Annual Meeting.

It was arranged that the annual meeting be held on the first Monday in May, at 1 o'clock.

The SECRETARY stated that the following gentlemen had been proposed as members of Council at the ensuing election :—

The PRESIDENT proposed Mr. Jas. Collins and Mr. John Roalfe Cox, London.

Mr. DRAY proposed Mr. Coates and Mr. George Williams, London.

Mr. COX proposed General Sir Frederick Fitzwygram, London.

Mr. WM. WHITTLE (of Worsley, Manchester), proposed Mr. George Morgan, of Liverpool ; and

Mr. GEORGE FLEMING proposed Mr. Gowing, London.

The Annual Report.

Messrs. Cox, Dray, Fleming, Woodger, and the Secretary were appointed as a committee to draw up the annual report.

Mr. Alfred Withers and Mr. Thomas Moore were appointed auditors.

Mr. Dray and Mr. Moon were appointed members to compose the Dinner Committee.

Special Meeting.

The meeting was then made special, for the further consideration and adoption of Bye-law 50 ; but the PRESIDENT said that if the proposed alteration were adopted at the meeting, it would be necessary to hold a special meeting seven days hence, which would be somewhat inconvenient. In consequence of what passed some time ago at the Council meeting, he had given a notice of motion to alter Bye-law 50, line 5 ; to insert in lieu of "or a certificate of liberal examination by the College of Preceptors," "or after an examination by the College of Preceptors on questions to be fixed from time to time by the Council." That would also involve another special meeting, and as they involved the same principle, he proposed to adjourn their consideration for three months, when one special meeting would be sufficient.

This having been agreed to, the proceedings terminated.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the several meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held during the week commencing April 1st, the following students from the Royal Veterinary College received their diplomas, and were admitted members of the profession :—

Mr. Walter Barron Hart, London.
„ Edward Miles Perry, New Bedford, Massachusetts, U.S.
„ Richard Page Bull, Tysoe, Warwickshire.
„ William Stanley Carless, Hoveringham, Notts.

Mr. George Wartnaby, Foremark Farm, near Derby.
„ John Joseph Burchnall, Stanford, Leicestershire.
„ William Alfred South, London.
„ Sidney Sturgess, Ashby-de-la-Zouch, Leicestershire.
„ William Edward White, Sheffield.
„ John Richard Carless, Stoke-on-Trent.
„ William Ashton Hancock, Uxbridge, Middlesex.
„ James Broad, jun., London.
„ Frederic William Day, Alderton, Gloucestershire.
„ Edward Lyne Dixson, Margate.
„ James Gifford Stephens, Tockington, Gloucestershire.
„ Charles Comber Hoadley, London.

The following gentleman passed his examination with *very great credit:* Mr. Wm. Ashton Hancock; and Messrs. Edward Miles Perry, and James Broad, jun., with *great credit.*

The following students of the Royal Veterinary College passed their "Second Examination," at the meetings of the Court of Examiners on April 4th and 5th:—

Mr. James Mills.
„ Frederick Leigh Slater.
„ Kirtlan Smith.
„ Edward Simpson Shave.
„ John Davies Thomas.
„ Joseph Bainbridge.
„ William Frank Smith.
Mr. James Blakeway.
„ Titus Littler.
„ Henry Shaw.
„ Wm. Henry M'Caldon.
„ William Robert Emery.
„ William Alston Edgar.
„ Chas. Hedworth Golledge.
Mr. Arthur Cox.

The following students passed their "First Examination" on April 6th and 8th:—

Mr. Chas. Henry Smyth Neate.
„ Henry James Kelly.
„ Samuel Benjamin Draper.
„ Walter William Gulleford.
Mr. Geo. Gartside Mayor.
„ Chas. St. Lo Wilkinson.
„ Walter Jas. Page Palmer.
„ Edward Slipper.

CENTRAL VETERINARY MEDICAL SOCIETY.

AT the ordinary meeting of the above Society, held at 10, Red Lion Square, W.C., March 7th, F. J. Mavor, Esq., in the absence of the President, took the chair.

Mr. ALEXANDER MAVOR showed an interesting calculus from the parotid duct of a horse—a rather rare occurrence, the various pieces fitting together in a sort of chain. They were removed during life by operating for an abscess; when they passed out the parts soon healed.

Mr. FLEMING observed that it was interesting there were so many pieces, and that the fistula had healed so quickly, for, as a rule, these fistulæ were very troublesome.

Mr. A. MAVOR further said there were five fistulæ, and now nothing was apparent. He did not know if the parotid duct was destroyed. The stones were composed of carbonate of lime. At the last the horse was nearly starved. The tumour was three years forming, and gradually increased in size, the swelling preventing the animal eating. The analysis made returned the weight of the calculi at 1,868 grs. Excepting a mere trace of organic matter, they were wholly composed of carbonate of lime; they were entirely soluble, there was brisk effervescence in dilute mineral and acetic acid, supersaturated with ammonia, and they gave a large

precipitate of oxalate of ammonia. There was only one side of the face affected. The horse was about ten years of age, and in regular work; and in operating he had cut the duct.

Mr. HANCOCK then submitted a specimen of tumour of the rectum from a small pony, eight or nine hands high, very aged. It was supposed to have piles. Finding the tumour, and that the bowels were confined and a difficulty of passing the fæces, he administered a mild purgative; and, knowing that in human surgery there were two forms of removal—ligature and cautery—he determined on the latter, and, bringing the tumour well out of the rectum, burned it off. No fistula followed, and it healed with a slight cicatrix.

Mr. FLEMING thought it scarcely a tumour, but more like a duplicate of the membrane.

Mr. MOORE, sen., concurred in the opinion offered, and that it had hardened by exposure to the air.

The CHAIRMAN also thought it more due to contraction of the sphincter embracing the portion of gut, which had ultimately hardened.

The adjourned discussion on Rabies was then resumed. The SECRETARY (Mr. James Rowe) said,—Regarding a few points touched upon in the essay and in discussion, he had not seen an instance of Rabies in a stray or neglected dog; in the practice of others he found them in confinement, and assumed they were sent by the owners. He found it difficult to believe that no case had yet appeared in the Dog's Home, seeing how many are there congregated, and that they are some days together. If we were to accept it as a fact (bearing in mind that the keeper and manager are not professional men, and there was, he believed, no veterinary inspector), and if the spontaneous generation of the disease theory had any weight, or if the mongrel and stray class are the medium of mischief, there was much to confound us in our search for its appearance and spread. He denied the spontaneous theory, feeling our ignorance is great when we make it our basis of belief. He did not deny the curability of the affection in its acuter stages, but believed that the veterinary practitioner would hardly find assistants to help him treat the case, or, from the exceptional risk of inoculation himself, manually perform his duty as earnestly as he would in the treatment of *every* other animal affection. He had been rebuked for his temerity in handling such cases; and the thought of risk incurred, but happily averted, was very deterring to continuance in the same manner. He noticed writers to the *Field* and others ask boldly why veterinary surgeons did not personally treat such cases and record their experience, and imagined the writers had not themselves faced the disease, or they would hardly ask a veterinary surgeon to coolly advance on an animal he probably never saw before, treat the local injury if known, and administer medicine.

Last February 2nd he had to attend a rabid Dalmatian dog loose in a private house. Found he was snappish and violent in starts, dating from some four days prior; that he ran from room to room, resting nowhere, and barked at nothing, the howl being distinctive. The owner, to confine him in one room, had threatened him with a stick, which the once quiet pet dog now seized and crunched. The owner, ramming it down his throat, shut the door; but he bounded through the window, cutting the mouth and foot, and when he reached the house had left blood-trails about the place. He would have risked leading him home; but those who knew him would not chain him, averring he would not allow any one to do so without injury. Having undertaken to poison him, syringed H.Cy. down the throat as he stood under the table; he grabbed at the syringe and then at him, and had he not seized the nape of the neck, and being left-handed, emptied the syringe, the result might have been serious. No *post-mortem* examination was allowed. He referred to this case, as he bit two other dogs a few days prior,

about January 29th. Knowing one well, the owner was cautioned to let him have early information if anything happened. The wound near the mouth soon healed without treatment. On Feb. 13th saw him again ; he was restless and irritable—previously a very quiet beast, always with the park-keeper, his owner. 14th. Was received and put in a loose-box, on the chain, having gnawed both legs, and being excitable, and with a changed bark, champing the jaws continually as if the hair round the mouth interfered with him. 18th. Had dropping of jaw; very quiet, and from eyes and nose a thick mucous discharge, not apparent the previous day : he had apparently been eating his fæces, the mouth being full of them. 19th. Found dead in the morning. The *post-mortem* inspection showed no satisfactory or conclusive results : the intestines and stomach were empty of food and foreign matters ; the trachea only flushed to a slight degree at larynx ; meninges of brain injected, though this was not apparent to any great extent in the atlas or dentatal part of the medulla oblongata. Leg sores scabby, and no more bitten. The parts were left with Professor Axe, who also was not quite agreed as to its being Rabies. The dog was about six years old. He failed to see how raising the tax would benefit the dog or his owner ; it would not lessen the number of coarse-bred dogs among the middle class, finding one was as much estimated as the other by the owner, and would only exempt the blind man. That dogs have increased is doubtless true, the numerous dog shows having enhanced their breeding and value ; but he was unaware of any outbreak of Rabies from such shows having been held.

With regard to treatment, it escaped him what the essayist advocated in regard to the supposed rabid dog : whether to destroy it at once, or let it live its life out under the scrutiny of the veterinary surgeon, as confirmative or not of the disease. Whenever he could, he would endeavour to pursue the latter course ; one benefit, professionally speaking, would be in the examination of the lesions afterwards, so as to arrive at a better knowledge.

The legal question concerned us not a little, and with it we should associate mental disease, excitement, a brooding, or a pseudo-Hydrophobia in the human subject.

Lastly, and not least by far, the *moral influence* now asked of us by the victims of bites, or those scared by the company of rabid patients. There we could not be too careful, and there we were the allies of the sister profession, who were beginning to look to us with confidence to recognise a fell disease no less fatal to our patients than to theirs, and which our individual efforts might do much to diminish in numbers. He would ask, Can we not distinctly judge between epileptic fits from any cause and Rabies? and between fits from teething, occasional excitement, viciousness—natural, or the result of preceding ill-treatment—and Rabies? Assuredly we can, and so also can we quiet the alarm of a person bitten under such a state of things. He sincerely hoped that the many who had consulted him for themselves had not done so in vain, and that his personal experience from bites under many conditions was a sufficient guarantee for his opinion. Not long since he paid a guinea claim for a bite, which the owner first paid, then deducted from the account a month or more after. There a passer-by was snapped at by his patient, who unknowingly brushed him as he went ; the claim was for actual expenses. In another submitted to him for an opinion, £25 was claimed and paid in opposition to his opinion, the dog being sound in health ; the man was worried into delirium tremens by drink and his comrades' cruel badinage ; and other instances he knew of. A physician sent him to examine a dog on behalf of his cook, whose fears caused sleeplessness ; a coachman bitten in the groin by the mad greyhound at Shoreham, as reported some years since, has several lozenge-shaped

blue raised scars to show it, is greatly excited when the topic is touched on, and cannot get rid of the fear. He would have no fear in sucking a wound from a dog, horse, or cat; and he would resort to Turkish baths, acid injection with a pipette or glass brush, of which he submitted samples, and moderate indulgence in alcoholic drinks, endeavouring by pursuing other subjects more assiduously to forget the circumstance, and trust the result to One wiser than himself.

The CHAIRMAN said there seemed to be a variety of opinions as to its nature; few people had the hardihood to undertake the treatment of the disease, so far as the dog was concerned. A horse could be managed, though they were sometimes savage. As to the treatment, they did not even know the nature of Rabies.

Mr. HOWARD had given a great deal of attention to Rabies as a disease; he believed it was due to a specific animal poison passed into the blood, and its period of latency entirely depended on the animal's strength; with a strong constitution that it was eliminated by the ordinary excretory organs, and no further ill effects happened. In other instances, when the general health was disturbed, it manifested itself by the irritant action of the blood on the nerve centres, particularly the medulla oblongata, giving rise to the violent convulsion witnessed. As to treatment, he was convinced it had hitherto been on a wrong principle—the efforts made being to treat the symptoms, and not the disease itself. Curara simply soothed the nervous system and paralysed the action of the nerve centres. He objected to such palliative measures. It had been his fortune to treat successfully a rabid dog some three years ago, when he devoted almost without intermission a whole week to the case. He wore a fencing costume and gloves, and made very free with a riding-whip, to command the attention of his patient. The dog tore up the wooden floor, gnawing it continually, and at the chain, howling incessantly. The dog recovered, and was now alive; and the case had led him to believe that in the first stage the dogs travel the streets, biting others, go through the stages, and die, or recover. He treated with quinine and turpentine,—anti-spasmodics which, he held, acted specifically on the blood. He was induced to use it by reading of a case of Anthrax in the human being, which was treated successfully with quinine, although deemed hopeless. He gave it by main force from the graduated measure; the quinine was given in two-grain doses one half-hour, and the turpentine next in five-minim doses. There was no difficulty in swallowing—the less so because it was not of the dumb kind. The whipping the dog did not seem to heed.

Mr. MOORE, sen., said this was a very interesting case, but would only do for one possessed of the necessary courage; and he would not like to go through the ordeal. A great difficulty in treatment lay in the dog having often swallowed foreign substances, and over-distended the stomach thereby; here he thought cure was hopeless. He thought the erroneous ideas prevalent in the country should be combated, such as those put forward by Sir Thomas Watson,—that there were spontaneous cases, and more than the inoculated cases. He believed dogs might be affected with Rabies, communicate the disease, and yet recover. In the Stockport case, where the boy died in two months, it was shown the dog was still in good health. What had communicated Hydrophobia to the boy here, if not the rabid dog?

Mr. FLEMING said his experience of the power of swallowing was different to Mr. Howard's. In all the animals he had seen there was, more or less, inability to swallow; that led him to doubt the nature of the case related. He believed almost everything had been tried with regard to the human being, and yet the termination was fatal. Curara was a very dangerous agent, as it paralysed the muscles, and might be pushed too far; the remedy in the hands of a veterinary surgeon would prove useless, inasmuch

as the human and animal symptoms differ so widely: in man there was a very distressing spasm of the muscles; in the dog, generally, there was paralysis at a very early stage, so they did not want agents to induce it. The use of the whip recalled to his mind the practice in the East, of flogging the madmen there, believing the devil had got into them.

In his reply Mr. STEELE said his paper was more to elicit opinions on the important points than of opposing prevalent ideas. Mr. Howard, in his interesting case, had endorsed an opinion he had expressed in his paper—that in certain cases the poison might be thrown off; he based his opinion mainly on the fact that there were many animals supposed to have been mad that were now alive and well, and had yet communicated the disease. In his paper he had expressly suggested that more free use should be made of the system of treatment of Rabies by agents acting on the excretory organs. They read of case after case of treatment in the human subject, where specifics had been resorted to without regard to the endeavour to remove the poisonous matter. As far as he could learn from *post-mortem* examination and the microscope, there was extravasation of blood in various parts, and the characteristic lesions of Rabies or Hydrophobia appeared to be the collection of white corpuscles round the sheaths of the minute bloodvessels.

The meeting was then adjourned. Present, thirteen Fellows, one visitor.

JAMES ROWE, *Hon. Sec.*

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

AT the ordinary meeting of this Society held on March 26th, Dr. GEORGE THIN read a paper "On the Condition of the Skin in Tinea Tonsurans," in which he gave an account of the appearances seen in sections through the entire thickness of the skin of a horse affected with Ringworm. The author alluded to the evidence on which the identity of the disease in that animal and in man has been established, and to cases in which the *Tricophyton tonsurans* has been transmitted from the former to the latter. The skin was examined in both the earlier and the advanced stages. The spores of the *Tricophyton tonsurans* are found amongst the most superficial scales of the horny layer of the epidermis. They are found in the cutis only, in the shaft of the hair, and between the shaft and the internal root-sheath. The spores in no instance were found in the root-sheaths, hair-root, or hair-papilla, nor in the connective tissue surrounding the hair-follicles—that is to say, the spores were never found in actual contact with living tissue, the space between the internal root-sheath and the hair-shaft being analogous to the most superficial stratum of the horny layer. The affected hair first bends, and then breaks at a point usually midway between the rete mucosum and the hair-root. This the author attributes to the disintegrated hair yielding to the pressure produced by the normal growth of the air-shaft upwards. The changes found in the tissues of the cutis and rete mucosum are sometimes extensive, and are similar to those found in inflammation, from whatever cause it arises. The spaces between the bundles of connective tissue are more or less infiltrated with colourless blood-corpuscles (pus-cells), the walls and immediate neighbourhood of the bloodvessels being thickly studded with them. Retrogressive changes are found in the nuclei of the cells of the rete mucosum; and at some parts the epidermis has completely broken down, leaving the cutis denuded. In the latter case the surface is found covered with pus-cells. Small localised abscesses are found in the internal root-sheath and in the rete mucosum. The cell infiltration descends along the veins to the deepest parts of the cutis. The author, finding these well-marked inflammatory effects in tissues

which contain no vegetable organism, suggests that they are due to irritation, which is produced by the absorption of soluble matter set free during the growth of the fungus. The parasite finds its pabulum amongst effete epidermic structures, and can only assimilate by decomposing them. This theory seems to be the only reasonable one, because the effects produced are far in excess of those which might be expected to follow the pressure attending the distortion of the hair. The incapacity on the part of the fungus to exist in living animal tissues, explains the *modus operandi* of the very numerous methods of curing Ringworm. Many of the substances applied are simple irritants, whilst the parasticides in common use are also irritants. Inflammation, when sufficiently acute, cures Ringworm, as is shown by the fact adduced by the author, in which a simple wound through a Ringworm spot cured the whole patch. It is thus that the beneficial effect, in chronic cases, of a continued slight congestion is explained. The author further pointed out the probable injurious effect on the general health of the continued absorption of the irritating matters produced by the growing fungus.

Dr. F. TAYLOR said that a few months ago he had the opportunity of removing after death a portion of the scalp of a child affected with Ringworm. The child had died of cerebellar tumour, and during the last few weeks of its life no treatment had been directed to cure the Ringworm. Dr. Taylor was still engaged in the microscopical examination of the skin, and so far as he had gone his results agreed with those of Dr. Thin; when completed, he proposed to communicate the details to the Society.

Mr. GASKOIN thought that the results of Dr. Thin's researches justified the prevalent methods of treatment, and especially the performance of epilation in Ringworm.

Dr. COUPLAND asked for analogous instances of the growth of fungi-producing materials capable of exciting inflammation.

The PRESIDENT referred to the fact, which he had observed, that Ringworm was more prevalent among the children of the better classes than among the poor, ill-fed, and destitute.

Dr. THIN could not offer any explanation of the fact. Certainly the disease was more common in London than in many places. It was not very prevalent in Continental towns. He thought that among the well-to-do classes it was more common in thin, pale-faced, fair-haired children. The fungus must assimilate and grow, and, just as in the process of fermentation and putrefaction, there must be some material set free by the growth of the fungus. Dr. Thin added that the best method to prepare the skin for microscopical purposes was, after hardening in alcohol, and making the sections, to place these in water and then in caustic potash. In that way there would be no risk of confounding the spores with the granules in the sebaceous glands.

On this subject, the *Lancet* of April 6th makes the following remarks:—

"The paper by Dr. Thin, read at the last meeting of the Royal Medical and Chirurgical Society, raised some interesting questions. Kaposi, speaking of the various forms of Ringworm, says that 'in these cutaneous affections, the parasitic nature of which is universally recognised, even when the affection lasts for years, and is accompanied by extreme inflammation with production of pustules and cicatrices, the elements of the fungi have never yet been seen to penetrate beyond the layers of epidermis into the papillary layers, into the corium, or into the lymphatics or bloodvessels;' and he thinks this constitutes a powerful objection against the phytogenetic pathology of the present day. A point at issue between Kuchenmeister (and we may now add Dr. Thin) and Kaposi, is that the former holds that the fungus only lives upon the effete and dead epidermal tissue, whilst the latter believes the

fungus to spread down among the epidermic cells which are still in active growth ; and, indeed, he gives a drawing showing this extension. He adds, however, that at present it is not precisely known what are the substances which the parasitic fungi take from the living tissues. Slight as the distinction appears to be, it is yet of primary importance. Indeed, upon it Dr. Thin has based his very reasonable hypothesis concerning the nutritive disorders set up by the growth of the fungus, as well as his explanation of the action of so-called parasticides in the treatment of Ringworm. Believing that the *Tricophyton* derives its nourishment solely from the effete material of the horny epiderm and its appendages, he supposes an antagonism between the fungus and living tissues, to such an extent that the products of living matter, serum, etc., will actually kill the fungus. The latter also reacts in a peculiar way upon the tissues themselves. In its growth upon the dead matter some products must be set free ; these in turn may act as irritants upon the surrounding skin, and set up the inflammatory changes so often seen associated with Ringworm, and the histology of which was carefully detailed in the paper. The action of local irritants is to produce similar inflammatory changes, and the exuded material destroys the fungus. It remains to be explained why, if this be true, the inflammation set up by the fungus itself does not lead to the destruction of the latter, and thus more often result in spontaneous cure. We may hope that these theories will receive due consideration, and be fully discussed. An opportunity for reviving them will be afforded when Dr. Taylor makes his promised communication. It is essential they should be well considered and discussed, for they have wide general bearings upon pathology, and especially upon the occurrence of inflammatory changes in wounds, etc. ; which it is the object of the antiseptic treatment to prevent. Much light may yet be thrown upon such conditions attributed to the growth of organisms by the study of the effects produced by the comparatively grosser forms of vegetable life which are met with in Ringworm."

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of the above Society was held at the Queen's Hotel, Leeds, on Thursday, the 11th of April, the President, Mr. Fallding, in the chair. The following members were also present :—Messrs. Jas. Freeman, T. Greaves, J. S. Carter, Jno. Cuthbert, W. Edmundson, W. G. Schofield, Peter Walker, J. W. Anderton, Parlan Walker, J. M. Axe, R. W. Murdoch, D. Spillman, W. Lodge, G. W. Carter, and the Secretary.

Professor Axe, of the Royal Veterinary College, and Mr. Robertson, M.R.C.V.S., of Leeds, were present as visitors.

Apologies for non-attendance were received from Messrs. M. E. Naylor, Jno. Fryer, J. Bale, Jos. and Jno. Freeman, E. C. Dray, and J. E. Scriven.

The minutes of the previous meeting were read and confirmed.

Professor John Wortley Axe, of the Royal Veterinary College, London, was nominated for membership.

The PRESIDENT introduced the subject of the "Fleming Testimonial Fund"; after a few remarks from Professor Axe in praise of the great literary labours and unwearied zeal of Mr. Fleming to enhance the status of the profession, it was unanimously resolved to form a committee to assist in carrying out the objects of the Fund, the committee to consist of the President and Secretary, Messrs. Axe, Cuthbert, and W. G. Schofield.

The selection of a member for a seat in the Council, resulted in the election of Mr. James Freeman, of Hull, by a considerable majority of votes ; and the Secretary was instructed to carry out measures in order to secure

his election, in conjunction with the candidates selected by the Lancashire, Liverpool, and Midland Counties Associations.

Mr. T. GREAVES then read a very able and interesting paper on "Germs: the part they play in the Production of Disease"; also "Disinfectants: the part they play in the Prevention and Modifying of Disease." The subject was well delineated, and elicited much useful information.

Professor AXE said that, of all subjects occupying the minds of scientific men, the subject of germs and germ life were to the medical, as well as to all other scientific bodies, the most important at the present day. The first question to be asked is, "Do germs exist? if they do, what are they?" The idea that germs are existing facts, trembling on the border-land between living and non-living matter, must be accepted with very great care, and also with considerable doubt. The germs of disease cannot be recognised by the microscope; so that physically we cannot separate them. The fact of the existence of germs has been demonstrated by the virus of infection after being filtered through porcelain.

The Professor differed from the essayist respecting the similarity of Septikæmia and Pyæmia. Pyæmia arises from inflammatory actions taking place in the venous system, forming pus, which is carried into the circulation, afterwards forming abcesses. Septikæmia is dependent on the introduction of a separate and distinct abnormal matter from pus into the system of the animal.

Disinfectants.—Our first object is to know what action carbolic acid has upon the agents used along with it; as, for instance, oil and spirits diminish its disinfectant action. The next question is, Does the same agent act upon all germs alike? Certainly not. Internal disinfection is of great importance in infectious diseases, though the subject yet requires great ventilation. The utility of carbolic acid internally administered in cases of Eczema Epizoötica has been very great in the experience of the Professor.

Other gentlemen having made a few remarks, the discussion was brought to a close.

A cordial and unanimous vote of thanks was awarded to Mr. Greaves for his kindness in introducing the subject for discussion; a similar vote of thanks was accorded to Professor Axe for giving the members the result of his experience of the subject.

It was unanimously resolved to invite Professor Walley to read a paper for discussion at the July meeting.

WM. BROUGHTON, *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of the above Association was held at the Blackfriars Hotel, on Wednesday, March 13th, 1878, Mr. Tedbar Hopkin, president, in the chair. The following gentlemen were present:—Messrs. Peter Taylor, Thos. Taylor, Thos. Greaves, Alex. Lawson, W. A. Taylor, M. J. Roberts, and E. Faulkner, of Manchester; Messrs. G. Heyes, R. Reynolds, and D. Hutcheon, of Liverpool; Cartwright, Whitchurch; J. A. Fallding and T. Briggs, of Bury; W. Dacre, Altrincham; W. Woods, Wigan; Darwell, Northwich; Brooks, Pilkington; T. S. Faulkner, Rochdale; Hart, Oldham; N. Fergusson, Warrington; Whittle, Worsley; T. Horrocks, veterinary student; and the Secretary.

Several letters of excuse were read by the Secretary; also one from Professor Walley, regretting his inability to attend the meeting in consequence of the approaching examinations; at the same time saying, "If you can arrange with the secretaries of the Liverpool and Midland Counties Associations,

I shall be pleased to read a paper on separate subjects to each about the middle of July." A vote of thanks was accorded Professor Walley for his kind offer, which was accepted.

The Secretary nominated Mr. Bernard Wood for election.

The TREASURER then read his report for the year 1877. He was pleased to say the Society was in a flourishing condition, as far as funds were concerned, he having in hand some £70 to £80; but, at the same time, he found the expenses lately had exceeded the income. To obviate this, Mr. Peter Taylor moved that at the next quarterly meeting he would propose that the annual subscription should be raised to £1, and also that a reporter should attend the meetings. After an animated discussion respecting the "Fleming Testimonial Fund," Mr. Woods, of Wigan, proposed that Messrs. P. Taylor, Tom Taylor, John Lawson, W. Dacre, the President, and Secretary, be formed into a committee of management, and the matter left entirely in their hands; seconded by Mr. W. A. Taylor, and carried unanimously. Mr. Alex. Lawson proposed that W. Whittle, Esq., of Worsley, be nominated as member of Council at the forthcoming election in May; seconded by Mr. P. Taylor, and carried. Mr. P. Taylor proposed Messrs. W. A. Taylor, E. Faulkner, A. Lawson, W. Dacre, President, and Secretary, as the electioneering committee; seconded by Mr. W. Woods, and carried.

Mr. THOS. TAYLOR then read the report of a microscopical examination of "Colloid Tumour," introduced at our last quarterly meeting by Mr. W. Dacre, the character of which produced a variety of opinions. Mr. Taylor said: "I am pleased to have the honour of recording a microscopical examination of the above tumour. From the extreme kindness of Dr. Droschfeld and Mr. Priestly, of Owen's College, Manchester, I am not only able to give you a report, but also to show you sections of the same under the microscope. I must own to you that the study of this instrument has, with me, been but limited; but I trust that in bringing forward this, I may say the first attempt of introducing the microscope at our meetings, it will not be the last, and that younger heads than mine, and members who have more time on their hands, may make use of this valuable instrument.

"Abdominal tumour"—small-celled sarcoma, probably lympho-sarcoma. Near the central parts of the nodules, the lymphoid cells of the tumour have undergone colloid degeneration, and disappeared.

Mr. Taylor also related a very interesting case of "Tumour in the left ventricle of the brain." The subject was a bay carriage-horse, twelve years old, brought to Grosvenor Street on Friday afternoon, Feb. 8th, 1878. The coachman in charge of the animal said, that for three or four days he had not taken his food at all well, and was very excited both when in and out of the stable, but the man did not think very much about it, as the animal had for a considerable time shown great nervousness when being driven in harness; more particularly so when his feet came on to the stones from off the macadamised road, or stepped into water—the horse at once becoming very nervous and bad to manage. The present owner had had the horse for six years, and the present coachman had driven it four years: and the excited appearance commenced about ten months ago. I found the pulse 60, and irritable: on the slightest noise being made he instantly became excited, but soon settled down again. The iris answered distinctly to the light, and with the exception of the visible mucous membranes being somewhat congested, no other symptoms were present. On having him brought out of the loose-box (in which he was standing on sawdust), the moment his feet touched the stones he was excited, and a quick tetanic spasm appeared at once to be produced. I allowed him to stand there a few moments, and when he had become composed, he would at intervals snap and bite at imaginary objects. When led on again, the same nervous tremour would appear, but when

allowed to rest soon passed off, and his locomotive powers became perfect. I had him gently walked and trotted, and he appeared to go all right. On taking him back into his box, the same symptoms presented themselves—the excited manner, the nervous tremour, the snapping and biting. I had his shoes taken off, but with the same result. I own I was at a loss to say what my case might turn out to be. I knew full well I had a brain affection to deal with; but the snapping I did not at all like, and dreaded Hydrophobia, although the history of the case was such that I could not bring my mind to think so, especially as the coachman said the horse had never been bitten by a dog. I gave him ten drachms of Barb. aloes in solution, and applied cold application to head, cold bran tea, and kept him very quiet in a roomy loose-box. A glyster was given, and he voided some soft fæces. Saturday morning found my patient still in the same condition; he drank his bran tea, but his bowels were not acting. We continued the treatment, but he gradually got worse. On Sunday morning he got down, and was unable to rise. We tried all we could, but when raised, he had not the power to stand. The excitement increased: if you only even clapped your hands or shouted, the paroxysms increased in intensity, as also the snapping and biting. This continued until Monday evening, when the animal died. The *post-mortem* examination disclosed a beautiful tumour in the left ventricle of the brain, which I have the pleasure of showing you, also microscopical sections of the same, for the latter portion of which I am indebted to Dr. Droschfeld and Mr. Priestly of Owen College, who very kindly prepared them, also giving me report of the tumour. It seems it is of a very rare class, and received the name of "psammomum," is situated in choroid plexus in left ventricle of the brain, is pear-shaped, and broad end forward. Size, 1⅞ths in. long and ⅞ths in. broad at broadest part; weight, nine grammes. Composed of calcareous nodules, deposited in the vascular loops of choroid plexus, and round them nucleated laminæ form. The rest of the tumour is composed of connective tissue; here and there degenerated blood pigment hæmatoidin is to be seen in granules. Mr. Taylor exhibited all three specimens under the microscope—which was very interesting and instructive, enabling the members to more easily understand the nature of the morbid specimens referred to.

The PRESIDENT then read a short paper on the "Antiseptic Treatment of Glanders," but the evening being so far advanced, the discussion was limited. At some future time, however, this most important subject will be brought forward for further consideration.

A vote of thanks to Mr. Taylor for his communication, and the trouble he had taken in obtaining the physiological history and sections of the "colloid tumour" and "cerebral tumour," was proposed by Mr. E. FAULKNER and warmly seconded by Mr. W. DACRE, and carried unanimously.

A vote of thanks was accorded Dr. Droschfeld and Mr. Priestly for their kindness in assisting Mr. Taylor.

A vote of thanks to the President closed the proceedings.

SAM. LOCKE, *Hon. Sec.*

EXAMINATIONS OF THE MONTREAL VETERINARY COLLEGE.

THE annual examinations of this College were concluded on March 28th inst. The examinations in French were conducted by Professors D'Orsennens and Bibaud, of Laval University, and Couture and Bruneau, lecturers of the Veterinary College. The English written examinations were conducted by Professors Dawson, Craik and Osler, of McGill University, and McEachran, Bruneau and Lyford, of the Veterinary College; the final oral tests by the following board appointed by the Council of Agriculture:—Alex. Waddell,

M.R.C.V.S., Quebec; Williamson Bryden, V.S., Boston, Mass.; Charles Levesque, V.S., Berthier *en haut*; Arch. McCormack, V.S., Beauharnois; Dr. Geo. Leclerc and C. J. Alloway, V.S., Montreal.

The following French-Canadian students were successful in passing *Botany*, by Professor Brosseau:—H. Audrain, Montreal; H. C. D'Aubigny, H. Bergerin, Beauharnois; J. Page, Lotbiniere; H. Jollicœur, Montreal.

Chemistry, by Professor D'Orsennens.—H. Audrain, A. Levesque, H. Bergerin and H. C. D'Aubigny.

Physiology, by Professor Bibaud.—H. Audrain, A. Levesque, H. Bergerin, and H. C. D'Aubigny.

IN THE ENGLISH DEPARTMENT.

Botany, by Professor Dawson.—Noah Cressy, M.D., Amherst, Mass., U.S.; George Parkinson, Bridgeport, Conn., U.S.; William Jakeman, Boston, Mass.; Matthias S. Brown, Montreal; P. Cummins, Quebec; E. White, Montreal; Alex. Harris, Ottawa.

Chemistry, by Professor Craik.—Noah Cressy, M.D., J. J. Miles, Charleston, Ill., U.S.; Daniel Lemay, Bord-a-Plouff, P.Q.; H. J. McMartin, Montreal; Charles Winslow, Rockland, Mass., U.S.

Physiology, by Professor W. Osler.—Noah Cressy, M.D., J. J. Miles, D. Lemay, H. J. McMartin.

Materia Medica, by Professor Bruneau.—Noah Cressy, M.D., J. J. Miles.

The following prizes were awarded:—For the best general examination on all subjects—first, F. W. McLellan, silver medal, the gift of the Council of Agriculture; second—Noah Cressy, M.D., urinometer and clinical thermometer. In the junior class—first, J. J. Miles; second, D. Lemay. A special prize of a clinical thermometer was awarded to Mr. F. W. McLellan for proficiency in practical anatomy. The diplomas of the College were conferred on Fred. W. McLellan, Bridgeport, Conn., U.S., and Noah Cressy, M.D., Amherst, Mass., U.S.

The following were present:—Professors Craik and Osler, of McGill University, and McEachran, Bruneau, Couture and Lyford, of the Veterinary College. Letters of apology were received from Professor Dawson, L. H. Massue, Esq.. President of the Council of Agriculture, J. M. Browning, Esq., and others, regretting their inability to be present.

Obituary.

WE have to record the death, on March 24th, at the ripe age of eighty-two years, of Charles Taylor, M.R.C.V.S., late of Nottingham. Mr. Taylor graduated so long ago as 1815, and had retired from the profession for a number of years. He had held the office of Vice-President of the Royal College.

Notes and News.

VETERINARY HONOURS.—It gives us much pleasure to announce that Veterinary-Surgeon Adams, of Augsburg, Bavaria—for many years editor of the *Wochenschrift für Thierheilkunde und Viehzucht*, the only weekly veterinary periodical in Europe—has been decorated with the cross of the first class of the Order of Merit of Saint-Michael. Professor Gille, of the Brussels Veterinary School, is nominated a Knight of the Order of Isabella the Catholic.

Professor Lafosse has been appointed Director of the Toulouse Veterinary School, on the retirement of Lavocat, who has held that important office since 1866.

VETERINARY CONGRESS AT PARIS.—During the forthcoming Universal Exhibition, a Congress of French Veterinary Societies and practitioners is to be held at Paris, when the following questions will be discussed :—1. The proper means to ameliorate the position of civil veterinary surgeons in France; 2. The best means of organizing the Veterinary Sanitary Service, and ensuring its efficiency; 3. The *rôle* which veterinary surgeons should assume in the inspection of fairs, markets, and knackeries, as well as in judging at exhibitions and in valuation commissions; 4. The conditions of admission to the veterinary schools, and the modifications which the instruction in these should undergo; 5. The veterinary associations in France; 6. Legislation with regard to unsoundness of animals and contagious diseases. It has been decided that this first French Congress shall be national, in order that attention may be exclusively concentrated on the professional interests of veterinary surgeons in France.

HYDROPHOBIA AND SKUNK BITE.—That portion of Dr. Elliott Coues's very interesting book, "The Fur-bearing Animals of the United States," which relates to madness following the bite of the skunk, has excited much attention. Though it has long been known that the bite of the skunk under certain conditions, like that of various other animals, is capable of inoculating a disease like Hydrophobia, it seems that only lately has the subject been thoroughly investigated and adequately presented. This has been done, notably, by two writers—the Rev. Mr. Hovey and Dr. Janeway—whose respective accounts are transcribed by Dr. Coues in full, preceded by a brief statement, which we quote :—"The points that Mr. Hovey makes are these : That Hydrophobia from skunk bite is a different species of the disease from Rabies Canina—the term Rabies Mephitica being proposed for it; that Rabies Mephitica is caused by a special hydrophobic virus generated by skunks; that possibly there may be a causative connection between inactivity of the anal glands and the generation of malignant virus in the glands of the mouth; that the bite of skunks, in apparently normal state of health (*i.e.*, not rabid in the usual view of the term), is usually fatal; that we might go further, and seek a solution of the whole dread mystery of Hydrophobia, in the theory that this terrible malady originates with the allied genera of Mephitis, Pectorius, and Mustela, being from them transmitted to the Felidæ and Canidæ, and other families of animals. He also suggests that the mephitic secretion might be found to be the natural antidote to the salivary virus. Some months afterwards Dr. Janeway replied in an elaborate article, detailing cures, and criticising Mr. Hovey's views, coming to the conclusion that the malady produced by mephitic virus is simply Hydrophobia. —*Forest and Stream.*

THE POISON OF THE TOAD.—The Brussels Veterinary Journal states, on the authority of M. Jacques, Government Veterinary Surgeon at Spa, that a dog, while walking with its owner in the forest of Sauvenière, caught a large toad in its mouth and bit it several times. The animal soon after began to show symptoms similar to those due to viper bite. After the administration of ipecacuanha syrup, the dog vomited, and then lay as if deprived of life until next day. Seeing that it was yet alive, its master gave it the whites of two eggs, and it slowly regained consciousness, finally recovering completely towards evening.

THE ARMY VETERINARY DEPARTMENT IN INDIA.—The Indian *Civil and Military Gazette* makes the following remarks on the Veterinary Department of the Indian army, which we commend to the notice of those

who may think of entering the service :—"We hear from home that, owing to the total absence of candidates for veterinary appointments, the Artillery cannot complete its establishments. We also hear that the thirteen senior veterinary surgeons on the home establishment have refused promotion, in order to avoid Indian service. There must be something radically wrong in the management of the Department to have brought about this state of affairs. The best men, we know, have for some time avoided the service; but now it would appear that men of any description cannot be induced to present themselves. There are several appointments existing in India which senior veterinary surgeons could fill with benefit to the service; and unless some inducement of this nature is held out for good men to leave home, we fear the Department in India will be but questionably represented. The Department is numerically weak, and its complaints are consequently smothered; and there is no one at the head of affairs in India who shows any disposition to remedy the causes which have brought about the veterinary surgeon's distaste for Indian service, or for the service generally."

In a more recent issue the same journal continues these well-founded complaints :—"There is one important department of the military service in India to which justice is not being done—viz., the Veterinary Department. There is no encouragement given to senior and experienced officers to come to India. There are, by the Army List, 42 first-class veterinary surgeons, out of which number only 7 are serving in India ; and there are 73 veterinary surgeons, out of which 47 are serving in India. India should have 22 first-class veterinary surgeons as its proper proportion—instead of which all the youngest men in the service are sent to this country to gain their experience instead of bringing experience with them. The fact is, that Indian service is detested by home men because they find themselves snubbed and ousted from appointments which properly belong to them. When Veterinary Surgeon Thacker died, the post of Remount Agent was given to a combatant officer with double the staff salary which Mr. Thacker used to draw ; yet the valuable services of the latter were unquestionable. This appointment was taken away from the Veterinary Department without any apparent reason ; and the head appointments at the Remount Depôts, which might be given to senior veterinary surgeons, are still withheld from them. Until some steps are taken to remedy the present state of things, discontent will continue, the status of the veterinary profession will suffer, and the Government will fail to get the benefit of the experience and skill which it ought to secure from England."

BOGUS DIPLOMAS.—Our readers will perhaps remember that a notorious vendor of "bogus" diplomas in America, named McClure, was recently convicted of fraud for dealing in these spurious wares, and sentenced at Philadelphia to nine months' imprisonment, in addition to a fine of $200. This sentence was jeopardised by a writ of error, but it has now been confirmed by the Supreme Court, and the diploma-monger receives his well-deserved punishment.

HYDROPHOBIA.—In consequence of four deaths from Hydrophobia in mid-Cheshire since the beginning of January, the magistrates of the Leftwich petty sessional division have issued a prohibition against dogs being at large, unless muzzled or under proper control. Recently, Captain Edward Parke Yates, the popular master of the Cheshire foxhounds, was summoned for allowing the hounds to be at large. It was proved they were unmuzzled, but under the immediate control of a huntsman and two whips. The magistrates, who stated that the order applied to homeless curs only, dismissed the case.

Correspondence, etc.

CONTAGIOUS PLEURO-PNEUMONIA.

To the Editor of the VETERINARY JOURNAL.

SIR,—In your last month's issue, from the report of the Lancashire Veterinary Medical Association, during the discussion of the duties, etc., of veterinary inspectors, Mr. Hill, of Wolverhampton, made the following remarks: "A cow was slaughtered, and afterwards the surgeon found a piece of wire protruding into the diaphragm, which no doubt had been there a long time, as there was no inflammation. The person, on finding the wire, said he (the speaker) had erred in his opinion, and he was told he would have to pay for the cow. The lungs were taken to another veterinary surgeon, who confirmed his opinion; but the gentleman he had mentioned would not give way, and the end of it was he had to pay £25 as damages for the cow, which belonged to the Corporation." Each of these remarks I positively deny. Mr. Hill first pronounced the disease "Pleuro"; I made the same mistake, and had the beast slaughtered. The following morning Mr. Hill wished me to report it as "Pleuro," after seeing the lungs—he still maintaining there were symptoms of the disease. So, to settle the question, the lungs were examined by a third veterinary surgeon; and upon his deciding there were no symptoms whatever, I declined reporting it as such. The case was taken in hand by our town clerk on behalf of the Corporation, and the county paid to the Corporation compensation to the amount of £7 10*s.*, in addition to what the carcase realised to the butcher. You will see from the above: First, I did not tell Mr. Hill he had erred, or that he would have to pay; secondly, the veterinary surgeon who examined the lungs did not confirm his opinion, but mine; thirdly, that he did not pay £25 as damages, but the county did £7 10*s.*

I am, yours truly,

E. BEDDARD, M.R.C.V.S.

Wolverhampton.

TYPHOID FEVER AT EAGLEY.

To the Editor of the VETERINARY JOURNAL.

SIR,—In the course of the presidential address to the members of the Lancashire Veterinary Association, given at Manchester on Feb. 8th, and reported in the March number of the *Veterinary Journal*, we observe an allusion to the Eagley Typhoid Epidemic in 1876. We feel astonished that a gentleman in the social position of Mr. Hopkin should allow himself to use, as authoritative, the *ex-parte* reports of any newspaper he may happen to take up, notwithstanding the fact that the statement receives no official confirmation. This he appears to have done in the present instance, totally ignoring the medical report to the Local Board of Health on the subject—a copy of which he might, and ought, in common fairness, to have obtained before making such disparaging remarks upon the medical profession collectively, and, by inference, upon the medical men engaged in the case in particular. The cause of the outbreak was never attributed to the action of acid milk upon the metal of the cans. The nature of the disease was correctly diagnosed from the first, and nothing then remained but the elucidation of the cause. In the course of investigation a particular farm was visited, from which all the patients were supplied with milk. The dairy utensils and

milk-cans were found to be in a filthy state—the latter smelling quite sour ; and between the joinings of the metal there existed a large interspace, which was quite full of what we might call lactate of lead, formed by the action of acid milk upon the solder. It was then considered if this could have any *influence* upon the course of the disease, when the fact was seized upon by some over-zealous reporter, whose fertile and imaginative brain produced the report in question. Our attention was drawn to it at the time, but being so much engaged, and the paragraph not being considered of great importance, it was passed over in silence.

In the discussion following the address, Mr. T. Greaves, of Manchester, in the course of a speech abounding in patronising eulogiums, and exhibiting a large amount of pardonable pride, exalted himself, and his friend Mr. T. Taylor, on a pinnacle of fame, as the discoverers of the Eagley milk-poisoning case, to borrow his own expression. Now, this is very selfish on the part of Mr. Greaves. Had he shown a little more modesty, and at least accorded to us some little share of the honour, we might not have been tempted to interfere and assert our right to the whole, but rather would have rested contentedly thankful with the portion which he, in generosity, might have granted. Under the circumstances, we are exceedingly sorry to be obliged to interpose and destroy the pleasing delusion under which he seems to be labouring ; but he appears to be so completely misinformed as to the true facts and circumstances of the whole affair, that we feel it a duty to the medical profession generally to supply *him* with a correct version, and to remove the erroneous impression his remarks must have given to the public at large. This we will endeavour to do in the most friendly spirit, and in the least unpleasant way possible, assuring him at the same time that we are actuated by no feelings of animosity towards him, nor do we desire to introduce personalities. We feel that he is simply labouring under a misapprehension of the true facts, and, if we mistake not, will be only too glad to be corrected, and will readily accept a proper and unbiassed version.

The date of the commencement of the outbreak was on Feb. 2nd, 1876, when sixteen persons, all of them being children, were brought under observation, presenting evidences of commencing Enteric Fever—the symptoms being so violent as to warrant the supposition of the inception of some powerful and irritating septic matter, other than the poison usually productive of Enteric Fever. On the two following days there were 131 other cases, presenting similar symptoms. All these cases occurring in the same vicinity, it was evident that the root of the mischief lay in some article of food used in common by all of them. The report of the medical officer contains the following passages :—

"Attention, then, being directed to the food, from inquiry made by myself and my son, we found that milk from the same dairy had formed part of the diet in all instances. Directing now our sole attention to the milk, we discovered that for some time it had been noticed to be unpalatable, and to give off a peculiarly unpleasant odour ; and our suspicions were further aroused on being summoned to the farm in question to attend two cases, which were found to be identical in symptoms with the others under my care. Upon entering the shippon we discovered one of the animals to be in a very questionable condition, suffering from the effects of an accident during calving. Inquiries were made as to the quality of the milk obtained from this cow—as, from the symptoms manifested, thoughts were entertained that the milk might be diseased, as occurs in the human female under similar circumstances. Upon this supposition it was directed that a sample of this milk should be submitted to me for examination. I examined this specimen, together with one obtained the day before from a patient under my care, and found both specimens to be very poor in quality, and of a peculiar *green*

colour, and possessing a very unpleasant smell and taste. My son drank a small quantity, and, as a consequence, felt slightly unwell for some days. . . . . On Saturday, Feb. 5th, I and my son paid a visit to the farm, and, with Mrs. K——'s brother-in-law, made a thorough examination of the cows, and also of the dairy and its utensils. We found the Eagley milk-can in a filthy state, which, of itself, would render any milk conveyed in it impure. We all examined the milk from the unhealthy cow, which had been preserved from the last night's milking, and found it in the same abnormal condition before mentioned. Mr. K—— tasted some of this milk, and immediately ejected it, remarking that it was very bad, and that he should not like to drink it himself.

"On the next day (Sunday) Mr. Molyneaux, veterinary surgeon, examined the cow in my presence, and declared it to be healthy and the milk good. Differing from him, I thought it most satisfactory to obtain the assistance of other veterinarians. I consulted with your Chairman, and he deemed it advisable to obtain the opinion of Messrs. Taylor, Greaves, and Locke, of Manchester. Notwithstanding the fact that they endorse Mr. Molyneaux's opinion, I feel convinced that an animal in the condition in which I *first* saw this particular one, must necessarily secrete milk which would be unfit for food; and as the symptoms observed in the persons affected were abnormal, I think I am justified in attributing the deviation to the effect of this particular milk. The reason of the diversity of opinion betwixt myself and the gentlemen above mentioned, is, I think, due to the very much improved condition in the cow's health at the time of their examination. . . . . *In the meantime* I had diverted my attention to the water supply of the Hardman's farm; and upon inspection I found that its main dependence was upon water obtained from a small stream running close past the house, this being collected in a tub near the dairy door. I ascertained that, while all water for domestic purposes was fetched, when required, from a pump situated behind H—— Houses, T——, that for dairy and general purposes was procured from this tub. . . . . I traced the stream before alluded to as far as the new mill now building at C—— G——, by Messrs. G——, and found there a most abominable state of affairs. The workmen employed in its erection not having been supplied with proper petty conveniences, they are compelled to make use of a field through which the stream flows; in the bed and on the banks of which I found large quantities of fœcal matter. This has so polluted the water as to render it totally unfit for any domestic purposes. . . . . The conclusions to be drawn from a *résumé* of the foregoing facts are: first, that the milk from Mrs. K——'s farm was the *vehicle* in which the fever poison was conveyed to all the individuals attacked; and, secondly, that the poison was introduced into the milk, either by the adulteration of it with water containing fœcal matter, or the germs of Enteric Fever, or by washing the dairy utensils and milk-cans in water contaminated in like manner. . . . . I may also add my own opinion that milk secreted by a cow in such a condition as the one I have before mentioned, cannot be fit for human consumption; and, as I before stated, I consider that the milk from the animal I examined at Mrs. K——'s farm has had a *modifying* influence upon those persons attacked by this terrible fever, and caused the peculiarities observed in the symptoms presented by those afflicted."

On the 5th of February, when it was without doubt proved that the real cause of the fever was conveyed in the milk, directions were given for the supply to be immediately stopped—which injunction was rendered superfluous by the action of the people themselves, who, when the milk was *only suspected*, refused to receive any more. This entirely destroys the assertion of Mr. Greaves, that *they* first directed the discontinuance of the supply. We may here direct attention to the following important facts: That the milk from

the diseased cow had not been *mixed* with the general supply until about the time of the appearance of the fever; that when the cow was first seen by us it was in a wretched condition, there being a considerable discharge of bloody pus from the vulva—a large pool lying at its heels; and that the veterinary surgeon's examination took place on the 9th of February, six days after our first inspection, when the condition of the animal had so much improved as to cause considerable surprise—even so much so as to raise a suspicion that it had been destroyed and another one substituted in its place. Bearing these facts in mind, together with the peculiarity of the symptoms the fever presented: its being more virulent in proportion to the youth of the patients; that some persons, either from a previous attack or insusceptibility to the poison, who had partaken of milk from this farm in question, were free from the fever, but presented symptoms of simple disorder of the digestive organs, as evidenced by Colic followed by Diarrhœa, etc.; and that these violent symptoms only presented themselves at the particular time when the diseased milk was mixed with the general contaminated supply,—we think we are perfectly justified in concluding that it exerted a very powerful influence, and to it alone were due the anomalous symptoms. To prevent confusion of ideas, we would particularly impress upon you the necessity of realising the proper meaning of the two expressions, contaminated and diseased milk,—the true fever germs not being presented in the latter, but it having simply a modifying influence upon the disease.

Reverting now to Mr. Greaves' speech, we will content ourselves by simply replying to each statement as it presents itself. The greater part of his assertions are answered and refuted in the preceding portion of this letter; but there remain a few remarks we should like to notice particularly. In the first place, there is the following: "They told the surgeon it was not the milk from the cow that caused the disease, and, as a proof, added, 'If it is the milk from this cow, how is it that, although the cow has been giving milk six weeks, there has not been a poisoning case until a week ago?' The surgeon replied the cow had never given any milk until then!" Now, the surgeon in question, having been accustomed to cows all his life, the remark attributed to him could not have been made, and is absurd, and could only be reconciled by the suggestion that Mr. Greaves mistook the expression used, which really was, "The milk had not been mixed with the other until then," or something equivalent to it, conveying the same meaning.

Next he says, "They advised the chairman to stop the delivery of this milk,"—which was superfluous advice, as the connection with the farm had already been severed, and the order had gone forth a long time previous to the visit of Messrs. Greaves, Taylor, and Locke, or the consequences would indeed have been serious.

As an answer to the concluding portion of his remarks, in which he retires in a blaze of light, we would simply inform him that Enteric Fever has a period of incubation varying from one or two to twelve days or more, and therefore, when he says the disease was checked from the moment his interdict went forth, it is rather an attempt to subvert the laws of nature to his own ideas and wishes. Cases did occur afterwards, and up to April 1st, but only in those in which the poison had been latent until that time.

On reviewing the foregoing plain and unvarnished statement of facts, it must be conceded that we have been successful in refuting the allegations of Mr. Greaves, and in correcting the misapprehensions under which he labours, and have at the same time established our undoubted claim to the honour—if any there be—of the discovery of the "Eagley milk-poisoning case." In conclusion, we would offer a suggestion in similar words to those used by Mr. Greaves. "If veterinary and human medical officers *would* keep their proper places, it *would* be better for the community at large,"—as we were

certainly under the impression that the veterinary surgeons were simply called in to report on the state of the health of a particular cow; and we did not understand that they were to undertake the investigation of the cause of a particular disease of the nature of which they are necessarily ignorant, and which had been already effected to the satisfaction of every one concerned.

We are yours, etc.,

JOHN ROBINSON, M.R.C.S.E., etc., Med. Officer of Health,
JAMES ROBINSON, L.R.C.P.E., etc., etc.

Dunscar, *April 8th*, 1878.

SPURIOUS TITLES AND AGRICULTURAL SOCIETIES.

To the Editor of the VETERINARY JOURNAL.

SIR,—Kindly permit me, once more, to trouble you with a few remarks in reply to Mr. Gerrard's letter in your last impression. If certain portions of my former communication, which appeared in the *Veterinary Journal* for February, are now repeated, it is only in order to lay more emphasis upon them.

I beg again to submit, that no veterinary surgeon has a right to invent institutions which do not exist; that he cannot say he is a member of the Royal College of Veterinary Surgeons of London or Edinburgh, when there is only one Royal College of Veterinary Surgeons for Great Britain and Ireland; that he cannot from caprice, or at the dictates of his imagination, append a string of letters to his name to which he has no real claim, without committing an absurdity; and that, worse than all, in so doing he is pursuing a practice tending to perpetuate that *hurtful disunion* which has been the great stumbling-block to the progress of the profession.

In my letter I made no comparison between the social status of veterinary surgeons north and south of the Tweed, nor did I intend in any way to rouse national susceptibilities. I took no such narrow-minded view, when I deprecated what I consider the very damaging and ill-advised interference of the Highland Society. If it were English, Irish, or Welsh, I should speak of it just the same; and I am obliged, after reading all Mr. Gerrard's arguments, to repeat the opinion—which I hold in common with the great majority of veterinary surgeons—that it would be in every way better for our professional education and progress, if the Society would now cease, except as an auxiliary, its connection with us.

Having myself studied at Professor Dick's College, and having also acted as an examiner on the Veterinary Board, I submit that I cannot be regarded as prejudiced against the Society; on the contrary, those who know my connection with it also know that I have good reason to regard it, as I do, with grateful affection; yet duty constrains me to protest against its present unfortunate attitude in our professional affairs.

Can there be any foundation for the rumour that a member of the Society not long ago stated that it (the Society) does not want well-educated veterinary surgeons, as that would mean charges such as Scottish farmers could not afford? It is difficult to conceive that any responsible member of the Society could have been so unwise as to enunciate such a sentiment. If carried into practice, it would be hostile and ruinous to all professional improvement, and would perpetuate a state of ignorance now happily passing away, but which has been fraught with disastrous results to those interested in our domesticated animals. Be it well understood that I am now speaking, not of Scotland alone, but of veterinary education generally, as it has been until the last few years, conducted in Great Britain.

They must be very short-sighted who cannot perceive that well-educated and trained intelligence is necessary to give rational and trustworthy advice for the prevention and treatment of disease, and that, in the end, it is far the cheapest to those who are wise enough to seek its assistance.

It would gratify very many veterinary surgeons to learn, on good authority, that no responsible member of the Society holds such a deplorable opinion as that embodied in the rumour above mentioned.

Every day the importance of veterinary science is becoming more recognised, and it is only by *miserable jealousies and disunion in its own ranks* that its increasing influence can be retarded. It is a great and indispensable aid to agriculture; but is also something far more, and when properly developed, will be worthy to take high ground whence its view may be as wide-ranging as that of any other branch of learning.

While, therefore, we should, and do, gladly welcome any well-considered and beneficial aid from the various agricultural societies, yet no injurious or *reactionary* interference should be permitted. It must always be remembered that agricultural societies have the greatest inducements to foster and encourage veterinary science. Yet what do we see? Of course I am now speaking more particularly of the leading societies of the three kingdoms—which have shown, and still show, in this respect, a parsimony which is indeed poor and lamentable economy. That they should do so is remarkable, when we look at the vast interests involved. Consider the position and pretensions of the Royal Agricultural Society of England, of the Highland Society of Scotland, of the Royal Agricultural Society of Ireland; and it will be seen how remiss they are. Signs have lately appeared that the two former have begun to recognise their shortcomings, but it would seem as if only in a half-hearted and perfunctory manner. As to the minor societies, I am not aware that they show any interest in the question, except to be sometimes exceedingly free with advice and criticism—things people generally offer with great liberality, because they cost them nothing. Irrespective of obvious duty, self-interest alone might prompt all of them to adopt a more enlightened policy.

It would be a ruinous and fatal mistake to attempt to split a small profession like ours into *rival national factions.* To pursue such a course would be extravagant and *suicidal* folly. Let all rather work to bring about concord, and remember how much wisdom is concentrated in our motto, "Vis unita fortior." Divided, the profession will painfully strive, and make little progress; united, it will find the path smooth and the ball at its feet.

Your obedient servant,

JAMES LAMBERT, F.R.C.V.S.,
17th Lancers.

Leeds Barracks, *April 13th*, 1878.

"QUACKERY."

To the Editor of the VETERINARY JOURNAL.

SIR,—As a French veterinary student, who hopes to obtain the diploma of Veterinary Surgeon shortly, I have read with interest a correspondence carried on in your excellent journal on the subject of what you call *Quackery*, and we *Empirisme.* I should not have dared to offer any opinion of mine on so important a matter, because I do not as yet hold a diploma, but I notice that by Mr. Parlan Walker's letter, as well as from conversations I have had with English veterinary surgeons on the subject, an idea prevails

generally among English practitioners that out of England, and in France particularly, our calling is in some way protected by law from *quack doctors*. So far as France is concerned, I can only say this idea is incorrect. Not only is the *empirique* allowed to practise, but he does so,—nearly every blacksmith in the country being only too ready to give either his advice or his surgical or medical aid. Again, we have what I do not remember ever having seen in England—a *hypo-empirical* type, well known at sight to the students. He generally presents himself at the daily free clinic of our schools, in company with a peasant who has a sick horse, and acts nominally as a sort of *chaperon* to explain the nature of the disease, but in reality to be able, if he has the chance, of seeing how operations are performed and what medicines are given. This type is known as the *malin du village*. His advice is often preferred—especially if ridiculous—to that of the veterinary surgeon. Sometimes he is, however, a shrewd, practical rascal, and a horse-coper, or *maquignon*. A much more dangerous man for the unfortunate patients and their thick-headed owners, is the intelligent town chemist and druggist, who, having passed an examination in the use and quantities of drugs as employed by doctors in human diseases, considers himself well able to treat the maladies of the lower animals. The result, as you may easily imagine, is always most disastrous—especially to dogs, which are usually the unhappy objects of his heroic style of treatment.

Apart from these regular quacks, there are in most parts of France amateurs and agriculturists, who treat their own animals, and are often considered to be great authorities on disease, etc.

Then the veterinary surgeon of this country rarely or ever castrates any of the domestic animals, except the horse; the operation being nearly always performed by agriculturists, empirics, and shepherds, or, when near the three veterinary schools, by the students. Any one who knows Paris must be familiar with the many street cries, and among them that of the ambulatory practitioner, who is to be seen any day, his stately head covered by a glazed hat (like that of the waterman of the London cab-stand), and the said hat ornamented by allegorical illustrations of his painful craft. As he proceeds, he cries, with a solemn air, "*Tond les chiens, coupe les chats*" (Dogs clipped, cats castrated), and then, in a softer voice, he adds, "*at every age*"—evidently to calm any fear of after-consequences that may lurk in the cat-loving mind of the Parisian housewife.

We have our empirics in as great number as you have. I only know of one instance of a quack having taken the titular rank of veterinary surgeon. He was prosecuted for doing so by a veterinary surgeon—the latter being a man who, owing to his incapacity, had plenty of spare time on his hands. If I remember aright, the jury let the empiric off on his promising not to write Veterinary Surgeon (*Médecin Vétérinaire*) after his name any more. The fact is, in France any one may practise the veterinary art, as long as he does not call himself *Médecin Vétérinaire* (or Veterinary Surgeon). Of course, an empiric cannot be employed as an expert in a court of law, nor even can a veterinary surgeon holding a foreign diploma be so employed; although the latter, if his diploma be a good one, such as that of Great Britain, by passing an examination in which he is principally examined in jurisprudence, so as to ensure a knowledge of the law on redhibitory diseases, etc., can easily obtain the same rights as a French practitioner. To my knowledge, there are at present in Paris two Englishmen practising as veterinary surgeons—one a member of the Highland Society, the other of the Royal College of Veterinary Surgeons. Neither have become members of our National Veterinary Schools, and, therefore, they cannot appear in the law courts. I suppose. however, they do not find it necessary. One has practised for many years in Paris; whilst the other—the M.R.C.V.S.

—being a blacksmith, probably does not think it worth his while to do so, he having, I believe, succeeded to an excellent business in the latter trade.

The thing that seems strange to me—if I am not presumptuous in expressing an opinion as an outsider—is, Why in England does the empiric cause so much annoyance, and why in France do we take so little notice or trouble about the parasite? Indeed, with us it is a sure sign of a veterinary surgeon either being incapable or idle, when he troubles himself either about quacks or about men holding diplomas and keeping blacksmiths' shops. The former is left to his own sweet will, and the latter considered to know his own interests better than others can teach him. *Chaque pays ses habitudes.*

Here we find, though undoubtedly there are many amateurs—such as private gentlemen, landed proprietors, cavalry officers, etc.—who are really very capable in treating sick animals, and often have an extraordinary knowledge of exterior hygiene and the general management of the lower animals, that they are generally glad, in any serious case, to call in even a young veterinary surgeon, and ask his opinion, although they do not always follow his advice; whilst in all surgical cases they admit that even the youngster who has just left the schools, and often a fourth-year student, will perform any operation in a scientific and practical manner. We of the profession, on the other hand, have the vanity to suppose, after four years' hard work, two of which we pass in the hospitals performing all the functions of dressers, and doing many of the minor operations, operating daily on the dead foot, shoeing, and twenty-eight times in the scholastic year performing the important operations, that at least, on getting our diplomas, we are practically equal, if not superior, to any empiric. This, coupled with the difficult and severe course of instruction (of the most compulsory nature) in exterior in every sense, generally starts the young practitioner in this country well armed against horse-copers and dishonest dealers, etc. We further, of course, know that there are very few persons who practise veterinary medicine in France without a diploma, that have any scientific knowledge of their business; and, without boasting, I think if the modern French veterinary surgeon has not this, it is his own fault. He must have a very bad memory, as every branch of study is taught us—as much, in fact, as the medical student. As I suppose the course of study in England must be similar to ours, and I know that the medical one, in the two countries, is the same, it has always surprised me that English practitioners appear to dread the horse-doctor so much more than the French veterinary surgeon does. Trusting that you will forgive my hardihood in thus correcting a popular mistake with regard to the legal protection in France,

I am, sir,

A French Veterinary Student.

[We are not aware that veterinary surgeons in this country dread quacks or empirics. What they most decidedly object to, and deem a serious wrong, is the unlawful assumption of their title by such persons without any legal redress. Any individual in England, Scotland, and Ireland, may assume the designation of Veterinary Surgeon, and even M.R.C.V.S., without let or hindrance, and so designate himself in law courts, or elsewhere, with absolute impunity. Therefore it is that farriers, cow-leeches, grooms, rejected students, and other illiterate and ignorant men, are practising as "Veterinary Surgeons" all over the land, and imposing upon the public; the certified members of the profession having no means of preventing their adopting the title. Our correspondent's letter renders it evident that this dishonest and injurious custom is not permitted in France. Veterinary surgeons in Britain are not so much anxious to suppress quackery as they are to prevent imposition, which does the good name of their profession so much harm, and is

damaging to the public interests. Quacks may pursue their calling, but they should not be allowed to do so under a title to which they have no right, which misleads the public, and which legally belongs only to those who have obtained the diploma of the Royal College of Veterinary Surgeons. In France these men dare not call themselves Veterinary Surgeons; in England they can, and this constitutes a very material difference in the position of our profession in the two countries.—ED. *V. J.*]

THE "FLEMING TESTIMONIAL FUND."

To the Editor of the VETERINARY JOURNAL.

SIR,—I am reluctantly compelled to ask you to grant me a little of your valuable space, to explain away a false impression that has arisen anent the origin and management of the above movement.

Several letters have been addressed to Mr. Rowe, honorary secretary, under the impression that he was acting for the Central Veterinary Medical Society, and that the movement emanated from them. Now, I wish this erroneous impression to be permanently removed—for reasons other medical associations will easily apprehend; therefore I need not enter upon them.

The subject was mooted some two or three years ago, when Mr. Roalfe Cox and our late lamented and highly-esteemed friend, Mr. Field, jun., were entrusted with the management, and to bring the subject prominently forward; and in such able hands the testimonial must have been a great success. But Providence removed the latter from amongst us, in the prime of life and zenith of usefulness, while the former useful advocate has been so unwell that it has been a severe trial for him to attend his important professional duties. Hence the business relapsed into abeyance, until I thought my leisure could not be better employed than by pushing the work they had already begun into life and working order. I therefore consulted Mr. Cox, and with his sanction started the ball in motion, taking up the running where he ceased. I solicited the assistance of members of Council, professors, and others, to form a provisional committee,—which committee was formed, with the President of the R.C.V.S., Major-General Sir F. Fitzwygram, Bart., as chairman; power being reserved to add to the committee. I am pleased to know that many additional names have been sent in; and I trust that all our veterinary medical associations will work with the general committee (as I feel sure they will), so that by their united efforts we shall realise a great success, and make the "testimonial" worthy of the man, thereby recognising honest worth whilst in the quick. Let us remember the words of Aristides:

> "Urit enim fulgore suo, qui prægravat
> Artes infra se positas . . .
> . . . extinctus amabitur idem,"—

which may be thus rendered:

> "For he who soars to an unusual height,
> Oppressive dazzles with excess of light,
> The arts beneath him: yet, when dead, shall prove
> An object worthy of esteem and love."

I am, sir,

Obediently yours,

ROBERT WARD, F.R.C.V.S.,
Treasurer.

London, W., *April 16th*, 1878.

"A REMINISCENCE OF DUTIES IN THE COUNCIL."

To the Editor of the VETERINARY JOURNAL.

SIR,—It has often occurred to me, when reading criticisms of some of the writers in the pages of the *Veterinarian* and *Veterinary Journal*, that it would be in some degree a satisfaction to them, and perhaps to some other members of our profession, if some member of Council would give them a fuller account of our doings in the Council than is vouchsafed them by the usual channel. It is not my intention to exceed the legitimate bounds of privilege. I have been a member of Council for nearly twenty years; am a tolerably regular attendant of the meetings; and I say it to the honour of that body, that each member is sincerely actuated by the leading idea to exercise his best abilities for the good of his profession. It is true, many men have many minds, possess different talents and aptitudes for business; also different degrees of intelligence. We have in the Council gentlemen of education and refinement, possessed of natural shrewdness, some of them of large practical experience, some of them of a theoretical and some of a practical business turn of mind; but each and all take a deep interest in our common profession, and use all their powers to raise its character and its efficiency. Our chief and ostensible duty is to appoint examiners and grant diplomas, also to keep a constant and careful supervision over the interests of our profession; but there are numerous matters being constantly brought before the Council for careful consideration, which the outside members of the profession never hear of.

Some of my professional brethren are inspired with a laudable ambition, and consider it a high honour to be a member of Council; others may look upon it as an inconvenience and a trouble to leave the ordinary routine of business to attend its meetings; members living fifty, a hundred, or two hundred miles away from the Royal College of Veterinary Surgeons, have to make up their minds to submit to the call upon their time and purse; it will require a whole day to attend each meeting five or eight times a year; the mind is kept up to its highest tension for three or four hours at the meeting, and then return home at nine or twelve o'clock at night, to travel until three or six o'clock the following morning. This time taken when one is busy, and has many serious cases on hand, is ill spared, and attended with more or less inconvenience. At times of excitement, when matters of great importance are on the *tapis* in the Council, it is necessary to attend ten or fifteen times in the year, besides the committee meetings, at which it would surprise any non-members of Council to see the work that has to be done.

I well remember the time when we applied to Parliament for a Veterinary Medical Act, and gave reasons (see page 527 of Journal for 1866), and the times when the two applications made to the Government for a Veterinary Charter for Scotland, the one in 1867-8, the other in 1876-7: we had many special meetings in addition to the quarterly meetings; we found each application was made by all the influence and with all the urgency that could possibly be brought to bear upon it by the magnates of Scotland—viz., the noblemen, the Highland and Agricultural Society, together with the Lords Provost of Edinburgh and Glasgow, and members of the corporation of Edinburgh. The deputation who presented the prayer was in each case a very powerful body indeed. They urged their claims with all the force and persistence they were capable of. The Lord President of the Privy Council, His Grace the Duke of Richmond and Gordon—to whom the matter was referred, and who, it must not be forgotten, was also chairman to the Highland and Agricultural Society of Scotland—took time to consider it in both cases. We all felt that our position was in great peril, that a dangerous crisis existed. These were indeed very anxious times for our Council: every cloud in the horizon seemed black and ready to burst; but even at the worst,

our hearts did not sink within us, for we knew our cause was just. We had on this last occasion a gentleman—Sir Frederick Fitzwygram—at the helm, in whom we had implicit confidence; his value and use to us and to the profession at that moment was simply inestimable. The matter was referred by the Council of the Royal College of Veterinary Surgeons to a committee, to take what measures they considered best under these urgent circumstances. On both occasions we formed deputations to wait upon the Lord President of the Council. I had the honour to form one of the first deputations, and to urge our reasons against the granting of a Veterinary Charter for Scotland. The last committee was composed of Sir Frederick Fitzwygram, Messrs. Collins, Harpley, Fleming, Field, and myself; we met at the Royal College of Veterinary Surgeons on the day after one of the Council meetings; we were engaged for 3½ hours. Sir Frederick and Mr. Harpley, being Governors, having to attend a meeting of the Governors of the *Chartered* Royal Veterinary College at Camden Town, we adjourned for 2 hours; then we met again for another 2 hours. During the whole of these 5½ hours, we were most earnestly and intently occupied with the consideration of the question as to the best course to pursue to obviate the attainment of what we considered must prove to be a great calamity to the well-being of our profession. We interchanged and discussed each other's ideas freely, frankly, and untiringly; some of my suggestions were approved and adopted, some of Mr. Fleming's were adopted; but the bulk of the reasons (see page 127 in the *Veterinarian* for 1876) against the granting of a separate charter for Scotland emanated from the clear heads of Sir Frederick and Mr. Harpley. I freely accord to them the honour of manipulating the chief of those reasons—reasons which were so clear and forcible, that no sooner had they been perused by His Grace the Duke of Richmond and Gordon, than he at once decided to refuse to grant the prayer of the petition for a Veterinary Charter for Scotland. I feel no hesitation whatever in saying that all the credit and honour is due to Sir Frederick for this successful result, he having brought to bear upon the question his great mind and lucid thought, his tact and his influence. The attention and time he gave to this matter was great and unsparing; the dozens of times he had to call upon our solicitor, the parliamentary agent, the Government offices, etc., etc.,—and yet there are those in the profession so full of a carping and contentious spirit, that they can see only faults where they ought to applaud. Even the new Charter, the preliminary examination, the extended curriculum of study, the practical examination, the Fellowship degree, the voting papers for members of Council, and the holding of the annual meeting in Edinburgh, are all matters of questionable utility in their eyes, although they see that *London is no longer the only place* to hold the annual meeting.

Some of my professional brethren say that a member of Council should be a superior man—a man of a refined and cultured mind, a gentleman possessing a classical education and scientific attainments; but I say he ought to possess other qualifications also. He should give proofs that he has the well-being of the profession at heart, and that he takes a deep interest in everything that appertains to its real advancement. He should possess not only ability and intelligence, but also be a man of close observation and clear discernment, having large and long experience in his profession; a man of position and character, and who understands fully the kind of education that will fit the young man best for the performance of his varied duties.

We have *no partiality between the two countries*—not the least desire to detract in the slightest degree from the position and character of those who have matriculated at the Edinburgh Veterinary College, but would much rather freely admit that many of those, our professional brethren, such as Fitzwygram, Collins, Williams, McCall, Gamgee, Fleming, Lawson, Cartledge, Robertson and Robinson, and others whom we could name, who have

joined the corporate body, are amongst the very best men in our profession; and we hesitate not to say that some of them are now, and others that we could name would be if elected, an honour to the Council, and even to the Presidential chair. We have always admitted this; we are now, and always have been, most anxious and solicitous that they all, without a single exception, should partake and possess the same advantages and privileges as ourselves; *we wish to give them a fair chance to take their proper place amongst us;* they would be heartily welcomed. We have offered the gentlemen who hold the Highland and Agricultural Society's certificate alone, every chance to obtain our diploma; we see their own friends freely and frankly admit that their certificate is not a "legal diploma"; and even when they showed no inclination to enter the corporate body, we offered them inducement after inducement in the way of granting to them the diploma on only a formal or practical examination. We admit fully, and take it for granted, that these gentlemen have studied the same subjects, and have been as well taught as ourselves; we are most anxious that they should possess a legal status, a legal standing. We have given every member of the Royal College of Veterinary Surgeons in Scotland a vote for members of Council, without having to come to London to record it. I feel it is a pity the holders of the Highland certificate do not join us, if only to put them in possession of a vote. We have inserted a clause in our new Charter to hold the annual meeting of the profession in Edinburgh once every third year. The Council were very anxious that it should be held in Edinburgh this May, and no one was more anxious, or fought more stoutly for it, than our noble and worthy President.

I am, sir, yours obediently,

THOMAS GREAVES, F.R.C.V.S.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from G. Evans, Royal Artillery, Sealkote; R. S. Laws, Toulouse; T. Briggs, Bury; J. Webb, Bishop's Stortford; J. and J. Robinson, Dunscar, Lancashire; J. Lambert, 17th Lancers, Leeds; J. W. Hill, Wolverhampton; J. Roalfe Cox, London; R. Ward, London; S. Locke, Manchester; A. MacGillivray, Banff; W. H. Coates, London; T. Greaves, Manchester.

BOOKS: *A. E. Vachetta*, Elementi di Patologia Chirurgica degli Animali Domestici; *A. De Silvestri*, Compendio di Patologia e Terapia Speciale degli Animali Domestici; *F. Konhäuser*, Die Krankheiten des Hundes; *T. M. Dolan and S. Pozzi*, On the Indications for the Use of the Trephine; *C. H. Hertwig*, Les Maladies des Chiens et leur Traitement; *R. Brown*, The Countries of the World; *A. Chauveau and S. Arloing*, Traité D'Anatomie comparée des Animaux Domestiques.

JOURNALS: *Medical Press and Circular; Lancet; Journal of National Society of Victoria; Oesterreichische Vierteljahresschrift f. Wissenschaftliche Veterinärkunde; Archiv f. Wissen. u. Practische Thierheilkunde; Recueil de Méd. Vétérinaire; Revue Vétérinaire; Deutsche Zeitschrift f. Thiermedicin; Annales de Méd. Vétérinaire de Bruxelles; Veterinary Review; Archives Vétérinaires; Wochenschrift f. Thierheilkunde; Der Thierarzt; Philadelphia Medical Times; British Medical Journal; Central-Blatt für das Deutsche Reich; Animal World; New York Hospital Gazette.*

NEWSPAPERS: *Philadelphia Inquirer; Philadelphia Public Ledger; Farmer; Mark Lane Express; Agricultural Gazette; North British Agriculturist; West Briton and Cornwall Advertiser; Flood, Forest, and Stream; Indian Civil and Military Gazette; Scotsman; Land and Water; Montreal Gazette.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.

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